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Two Hundred Years

Andrew Rothstein

ON May 7, 1955, the University of Moscow—the oldest centre of higher education in the Soviet Union—celebrates its bicentenary. Few there were 200 years ago—beyond the prime mover in its foundation and principal author of its first statutes, the genius Lomonosov—who could have foreseen the great destiny awaiting the University.

Russia was then a feudal empire reposing on serfdom, with the absolute power of its despot (Elisabeth, daughter of Peter the Great) limited only by fear of palace revolutions engineered by the great landowners. On their estates the gentry were absolute monarchs too, ruling the serfs with an iron hand and for the most part indifferent or hostile to any spread of culture or enlightenment.

The University, in spite of Lomonosov's desire to throw it open to all the empress's subjects (a poor fisherman's son himself, he believed passionately in the intellectual capacity of the Russian people), bore from the first deep birthmarks imposed by these conditions. We learn from its first historian, Shevyrev (*Istoria Moskovskago Universiteta*, 1855), how the University depended, in the most minute details of its government and teaching, on a great court noble, the all-powerful Curator, responsible direct to the high officials of State constituting the Senate. Children of serfs could not become students. " since the sciences bear no compulsion," unless the noble concerned gave the youth his liberty (seventy-two years later Nicholas I confirmed this in a special edict). Students were given the right to wear swords, as a sign of gentility, and after graduation ranked as officers (Shevyrev, *op. cit.*, pp. 14, 22). In the absence of adequate lay secondary schools, the majority of students for many years came in these conditions from ecclesiastical seminaries ; and even in 1855 Shevyrev wrote that " the professors of Russian universities have for the most part been sons of servants of the Lord's altar " (*ibid.*, p. 127). Moreover, fifty years after the University's foundation there were still eighteen foreigners among its forty-four teachers—so inadequate was the educational system—and a large number of courses had to be delivered in Latin, German or French for this reason (*ibid.*, pp. 362-6). Nor were there lacking—by the side of some zealous exponents of the natural sciences—teachers, especially in the first fifty years, who (if Fonvizin's memoirs are to be believed) bore a strong resemblance to those, chronicled by Gibbon in his *Autobiography*, who dominated the scene at Oxford in the 1750s.

The number of students reflected this national backwardness. In 1758 it was no more than 100, and at times fell below this figure. Stimulated by a more liberal régime in the first years of Alexander I, it reached 215 on the eve of Napoleon's invasion in 1812. Many students joined the army, and the University building itself, with its library of 20,000 volumes, priceless ancient manuscripts and scientific collections, perished when Moscow burned. In the years of intellectual ferment after the war the numbers slowly rose to about 800 full-time students in 1825. Repressions after the Decembrist revolt in that year brought the numbers (including part-time students) down to 438 in 1836, the year after a most reactionary new statute had been imposed by Nicholas I, and this number had only risen to 1,089 by 1854, on the eve of his death.

With this gloomy background, the high intellectual achievement—and no less the courage and resolution—of many teachers and students of the University of Moscow during the first century of its existence cannot fail to excite

astonishment and admiration. Among its very first students was Denis Fonvizin, Russia's earliest writer of bold satire on the nobility—not only in his well-known comedies, but also in stinging prose, for which Catherine II ultimately dismissed him from his official post and forbade the printing of his work (1784). Another, Semyon Desnitsky, after graduation spent six years at Glasgow University (1761-7), where he attended Adam Smith's lectures, and became on his return professor of jurisprudence (1768). A century before Lewis H. Morgan, Desnitsky put forward in various lectures the theory that the historical development of the family, the State, laws and social customs was dependent on the evolution of man's economic pursuits from the hunting and food-gathering stage to the "commercial"; moreover, he was a critic of serfdom and of the social and legal system based upon it (*Izbrannye Proizvedenia Russkikh Myslitelei vtoroi poloviny XVIII veka*, ed. Shchipanov, 1952, I. pp. 194-9, 204-7, 259-267, 270-286). A third, Dmitri Anichkov, appointed lecturer in philosophy in 1765, had his appointment as professor delayed for several years because of his materialist views on the origin of religion, boldly expressed in his dissertation. He was "too much influenced by Lucretius, proletarian among philosophers, porcum ex grege Epicuri", in the elegant words of a German senior colleague, Reichel (Shevyrev, *op. cit.*, p. 142). Popovsky, appointed professor of rhetoric and philosophy at the foundation of the University—he had studied at the Academy of Sciences, the favourite pupil of Lomonosov—wrote a striking poem, "On the Uses of Learning", which could only be published twelve years after his death (1760) because in thinly veiled language it denounced the practices of serf-owning society and the horrors of wars of conquest. His translation of Pope's "Essay on Man" (delayed in publication because suspected of views contrary to the doctrines of the Orthodox Church) and of Locke's "Thoughts on Education" (Shchipanov, *op. cit.* pp. 95-101, 664-5); his foundation in 1756 of the University's bi-weekly newspaper *Moskovskie Vedomosti*, which in cautious forms did its best to stimulate interest in technical, intellectual and social progress (Berkov, *Istoria Russkoi Zhurnalistiki XVIII veka*, 1952, pp. 108-112); his vain attempts to insist that lectures on philosophy be delivered in Russian rather than in Latin (Shevyrev, *op. cit.*, pp. 30, 57-8)—all make Nikolai Popovsky a remarkable figure of the Russian enlightenment.

The circulation of *Moskovskie Vedomosti* went up from 600 to 4,000—a very large one for those days—when it was taken over (1779-1789) by one of the really great figures of eighteenth-century Russia, the rationalist, humanist and critic of serfdom Nikolai Novikov. While in control of the University's printing press during these years, and during the three years that remained to him before Catherine II sent him to a fortress, Novikov not only produced a variety of literary journals and books by Russian authors, but also published scores of translations calculated to acquaint the growing Russian reading public with the best works of literature, history, philosophy, political economy, ethics, etc., printed abroad—enlisting for this purpose professors and students of the University. It was in this way that he produced Popovsky's translation of Locke, already mentioned; Desnitsky's translation of Blackstone's *Commentaries on the Laws of England* and a practical handbook on agriculture; an abridgment of Bacon; Swift's *Gulliver's Travels* and Sheridan's *School for Scandal;* novels by Smollett, Fielding and Sterne; Milton's *Paradise Lost* and William Penn's *Some Fruits of Solitude;* fourteen works of Voltaire, several works of Rousseau, Diderot and D'Alembert, as well as the classic French dramatists; and many others of as wide a range, which brought the University of Moscow into the ranks of the great European centres of progressive thought (Makogonenko, *Nikolai Novikov*, 1951, pp. 506-511).

Catherine's panic and fury at the progress of the French Revolution brought to an end this first period of the University's stimulation of minds. Yet the

work had been well done ; as a Soviet historian has shown, it was in the University after the accession of Alexander I (1801) that many of the future Decembrists (Yakushkin, Nikolai Turgenev, Kakhovsky and others, together with their friend the satirist Griboyedov) first heard and ardently discussed the progressive ideas cherished by teachers who had grown up within its walls in the previous thirty years (Nechkina, *Griboyedov i Dekabristy,* 1948). When in 1802 Karamzin, the future historian of Russia and already a successful novelist, was permitted to start *Vestnik Yevropy,* a new political and literary journal, under university auspices, it was received enthusiastically by a public as eager for new ideas as it was for education. A Society of Russian History and Antiquities and a Society of Naturalists (both founded in 1804), a Mathematical Society (1811), the commencement of public lectures on the history of Europe (1803) and on the economic history of England, by Schlözer (1804), both to crowded auditoria—each in its way testified to this. Among the teaching staff Mudrov (professor of medicine 1809-31) was distinguished alike by being the founder of Russian therapeutics and by his friendship with Novikov ; Goriushkin (professor of jurisprudence from 1786-1811) produced in these years the first large-scale commentaries on the laws of Russia ; Dvigubsky—pinned to the wall for all time in later years as the typical Tsarist university rector, a reactionary servant of government policy, in Herzen's *My Past and Thoughts* (chapter V)—was at this time a painstaking teacher of natural science and the author of the first Russian textbooks on chemical technology (1807-8) and physics (1808). The régime in the University had been considerably eased by charter in 1804, which gave it a measure of autonomy. There were signs before Alexander I died in 1825, however, of a turn to reaction under the impact of peasant unrest : the establishment of chairs of theology, for compulsory instruction of all students, in 1819 ; the prohibition, the same year, of the further publication of a famous work of Lomonosov ; and the dismissal of a number of " suspect " professors at the Kazan and St. Petersburg Universities, *pour encourager les autres.*

The full turn of the wheel, however, came after Nicholas I had crushed the first Russian revolutionaries on Senate Square in St. Petersburg (December 14, 1825), and turned his attention—among other possible sources of danger in a country where the bankruptcy of the old order was yearly becoming more plain —to the University of Moscow, " that den of wolves ", as the Tsar said to one of his courtiers when driving past it. The already very meagre teaching of philosophy disappeared almost at once from its curriculum, to reappear only for one brief period (1845-50) before Nicholas's death in 1855 : the edict of 1827, which categorically forbade young people of serf status to be admitted as students, underlined that they should not " become accustomed to a kind of life, a way of thought and understanding, not suited to their station " : a special university inspectorate, consisting of an army captain and five full-time assistants, was set up in 1834, " in order that vigilant watchfulness over the university youth should extend beyond the University's walls " (Shevyrev, *op. cit.,* p. 482) ; and in 1835 a new statute formally abolished the University's autonomy. Of the years from 1848 to 1855, in particular, the great historian Solovyov—himself both graduate and professor of the University of Moscow—wrote in his private diary that they reminded him of " the first period of the Roman Empire, when mad Cæsar, relying on the prætorians and the mob, crushed all that was best and spiritually most developed in Rome ". No reign was so distinguished for its frequent visitations of the University by the emperor, by members of his family and by the highest officials, Shevyrev noted, perhaps not without irony ; in particular, there was not a professor whom the Minister of Education, Uvarov, did not hear delivering his lectures (*op. cit.,* p. 509).

The Moscow students answered in the traditional way. In 1826 the seditious

poem " Sashka ", composed by one of them, Alexander Polezhayev, was circulated surreptitiously in hundreds of copies, despite the author's arrest and conscription as a private soldier. In 1827 a secret discussion group, organised by two brothers Kritsky, was broken up by the police, and some of its members were imprisoned in a fortress. In 1829 three remarkable students began their careers as preachers and organisers of democratic revolutionary doctrines —Belinsky, Herzen and Ogarev—by starting three illegal groups to discuss republicanism, the fight against tyranny and the abolition of serfdom: Belinsky's group lasted until his expulsion in 1832, the others continued until their organisers graduated in 1833. Another group, that of Stankevich, not directly revolutionary in its aims, concentrated on the banned subject of philosophy nevertheless, thereby likewise swelling the volume of unorthodox ideas. The poet Lermontov was a contemporary of all these, as a student in the faculty of moral and political science (1830-32) and, although not a member of any circle, reflected in his play written in 1831, *A Strange Man*, something of the spirit of their discussions. Another student in the faculty of language and literature (1831-4), the gifted future novelist Goncharov, was evidently at this time restrained by his moderate liberal views (he came from a wealthy merchant household) from such associations—although in after years he became a friend of Belinsky's.

Later, in spite of strongly entrenched obscurantism among the teaching staff, a number of brilliant professors and lecturers in the forties and fifties challenged established dogma, not on the political field but by the very force of their new ideas. It must be remembered that in these years the Ministers of Education proclaimed as their watchword : " Orthodoxy, Autocracy, Nationalism ". Very far from these was the teaching of Granovsky, a friend of Herzen and Belinsky though not accepting their revolutionary views. His public lectures on medieval European history (1843-6 and 1851) attracted large and enthusiastic audiences just because, in his analysis of the Middle Ages in the west, he clearly gave his hearers the hope that in Russia, too, serfdom and despotism would pass away. His successor, Solovyov (professor of history from 1845), though believing that Russian historical conditions had made autocracy a necessity in the past, was also convinced that in the fullness of time the State itself would make the necessary social changes. The vast research in previously untouched archives on which he based the volumes of his massive *History of Russia*, appearing annually for twenty-nine years, gave immense authority to his liberal opinions. Buslayev, lecturer from 1846 onwards in Russian language and literature, was the first to present a truly historical appreciation of ancient Russian literature, folklore and art as part of the growth of a people. Kudryavtsev, lecturer in universal history from 1847, a pupil and friend of Granovsky, responded to the unspoken demand for the historical justification of the hopes of liberty by erudite and sympathetic studies of the revolt of the United Netherlands and, above all, of the history of Italy (in private he was a passionate supporter of the struggle of Italian democrats for national liberation). Babst, another pupil of Granovsky and lecturer in political economy from 1857, set forth the main ideas of Marx's recently published *Critique of Political Economy* in a public lecture in 1860, and in his course that year expounded the labour theory of value. Previous to this he had, on the basis of extensive studies in the economic geography of Russia, attracted much attention by his destructive criticism of the economic basis of serfdom. The future founder of the Russian school of astronomy, Bredikhin, began his career as lecturer at Moscow University in 1857. Four outstanding teachers in the medical faculty in these years were Dyadkovsky (1832-35), who conducted pioneer work on the role of the brain and the nervous system in pathology, and explained life as the interaction of the body with its material environment (he was dismissed from the University in 1836 on the charge of materialism and undermining of religion) ; the remark-

able surgeon Inozemtsev (professor from 1835 onwards), whose " drops " are still in use in the treatment of cholera, and thanks to whose efforts clinics were established at a number of Russian universities ; the physiologist Filomafitsky (professor from 1836-47) ; and Basov (professor of surgery from 1848), whose work prepared the way in many respects for that of Pavlov. Roulier (professor of geology 1840-55) founded a pre-Darwin school of evolutionists on the basis of his researches in jurassic deposits of the Moscow coalfield.

With the end of the Crimean War, the economic and social system which Nicholas I had striven to bolster up by terror over men's minds as well as their bodies, during his thirty years' reign, came into full crisis. It became urgent, in the words of Alexander II when addressing the Moscow gentry on March 30, 1856, to end serfdom from above lest it be ended from below. At the beginning of the sixties, therefore, Russia moved forward from the feudal to the capitalist order ; and although much of the old system was retained clinging to the new, an unmistakable impetus was once again given to the development of her higher education.

During the half-century of Russia's development as a capitalist country after the abolition of serfdom (1861-1917), the University of Moscow exerted a previously unprecedented degree of influence upon national life and thought. The number of its students rose to over 1,500 in 1871, over 2,400 in 1881, over 4,000 by 1896, and reached nearly 9,900 in January 1914. They included such names as Turgenev, Ostrovsky and Chehov. From the University there sprang new learned institutions of great national standing : the Polytechnical Museum (1872), the Historical Museum (1873)—now occupying the very site where, in 1755, the original university building stood—the Pirogov Society of Physicians (1883), the Pedagogical Society (1898), the Museum of Fine Arts (1912). And while obscurantists, mediocrities and time-servers could be found at all times among its teachers (notably in positions of authority), there constantly broke through this barrier the influence of as brilliant a constellation of fresh and pioneering thought as had ever been grouped together in a teaching institution. It would be impossible here to cite more than a few outstanding names.

It was particularly in the natural sciences that hidden springs of talent seemed to gush forth after the sixties with irresistible strength. In astronomy, Bredikhin was followed by Belopolsky (1877-88), who developed the science of astrophysics ; in aerodynamics, the work of Zhukovsky and Chaplygin made a marked contribution to world knowledge ; in chemistry, Markovnikov (professor from 1873 to 1904) and Academician Zelinsky, still working in 1955 at the age of ninety-four, both contributed enormously to the knowledge of petroleum ; in geochemistry Vernadsky, one of the first creators of this science (professor 1898-1911), and in geology A. P. Pavlov, one of the founders of comparative stratigraphy and palæogeography ; in geography and anthropology, Anuchin—head of the first Russian department of anthropology from 1880, and of the first department of geography from 1885 until his death in 1923, teacher of a whole generation of Russian geographers ; in physiology the great Sechenov, student (1850-6) as well as teacher (1891-1905) at the University, author of the first work on reflexes of the brain ; in plant physiology Timiryazev, the distinguished Marxist who was a foreign member of the Royal Society (movingly described by Arthur Ransome in *Six Weeks in Russia in 1919*) ; in medicine Sklifasovsky ; in physics a remarkable succession begun by Stoletov (professor from 1863 to 1896) and continued by his pupils P. N. Lebedev, discoverer of the pressure of light (professor from 1900 to 1911), and Umov (professor 1893-1911), whose work led to the establishment of an Institute of Physics (1903). In the faculty of history, Klyuchevsky, pupil of Solovyov, professor of history after his death (1879-1911), combined painstaking study of documents, and a new interest—characteristic of the period—

in economic and social studies, with a vivid quality of literary exposition which captivated his audiences and has even to some extent survived the translation into English of his *Course of Russian History*—one of the very few Russian academic works which is available to non-Russian readers. Before him there had come Maxim Kovalevsky, professor of constitutional law 1877 to 1887, well known abroad for his ethnographical and medieval economic studies.

These names—and many of their immediate pupils—constituted an ornament for Russia such as she had never before possessed. Yet, impelled by their studies towards a materialist philosophy, in a great number of cases they provided in their careers more examples of the always latent conflict in Russia between scholarship (or science) and Tsardom. In 1866 Sechenov was prosecuted for the materialist ideas contained in his *Reflexes of the Brain*. Markovnikov had in 1871 resigned his chair at Kazan University in protest at the victimisation of a distinguished colleague, the anatomist Lesgaft, who had objected to political supervision of the university. In 1887 Kovalevsky was dismissed from his post for his progressive ideas. In 1911, in protest against the gross interference of Kasso, the Minister of Education, and the expulsion of several thousand students, Timiryazev, Chaplygin, Lebedev, Zelinsky, Vernadsky, Umov and Menzbir (professor of zoology and zealous champion of Darwinism, later rector of the University from 1917 to 1919 and the editor of Darwin's complete works in Russian in 1925) resigned their posts : 131 of the University's teachers, about a third of the total, either resigned or were dismissed. The fact is that, in that glorious but tragic half-century, even more than before, the cause of enlightenment and learning in Russia was the cause of struggle against autocracy.

The students themselves, willy-nilly, were drawn into the struggle, and more than once many of them paid a heavy price. This particularly applied after a rather more liberal statute for all universities, introduced in 1863 under Alexander II, was replaced in 1884 under his successor by one which, as the liberal monarchist Miliukov himself wrote, created in the rector, deans of faculties and the inspector " a kind of branch of the Ministry within the university " : a situation which could, he said, be changed only by student disturbances, " the chief impelling force of all Russian reforms " (*Ocherki po Istorii Russkoi Kultury,* vol. II, 1902, pp. 367, 370). In fact, when Klyuchevsky published a loyal address on the death of Alexander III (1894) his students organised a hostile demonstration in his own lecture-room (*Na Zare Rabochego Dvizhenia v Moskve,* 1919, p. 99). The following year, after demonstrations against the 1884 statute, there were wholesale arrests among the students, many being exiled (Perris, *Russia in Revolution,* 1905, p. 70). In February 1899, 4,500 Moscow University students went on strike on learning of the notorious " February 8 "—the day on which students of Petersburg University were wantonly attacked by mounted police with *nagaikas* (whips with multiple leather thongs) : over 2,000 were expelled from Moscow, 1,000 of them by the university authorities. Timiryazev, Vernadsky, Sechenov, Umov and Zelinsky were among the professors who signed a protest demanding a change in the treatment of the universities (Chertkov, *Studencheskoye Dvijenie 1899 goda,* 1900, and Libanov, *same title,* 1901). In July the same year " temporary regulations " were issued, under which, in January 1901, 183 students of Kiev University were sent to serve as private soldiers as a punishment, and the following month twenty-seven from St. Petersburg ; on February 23 the Moscow students demonstrated in protest (*Revolutsia i RKP v Materialah i Dokumentah, II,* 1924, pp. 542-3). In February 1902, police gathered in the University courtyard while over 500 students were assembled in a lecture hall to discuss whether to hold joint processions with the workers, arrested hundreds on their way to the meeting and finally broke into the hall, arresting everyone present ; hundreds were exiled to Eastern Siberia (*Listki Zhizni,* No. 3, 1902).

Several hundred students participated in anti-war demonstrations on October 16 and 17, 1904, which were broken up by gendarmes ; further demonstrations took place in December the same year ; and on learning of the mass shooting of workers in St. Petersburg on " Bloody Sunday " (January 9, 1905) the entire University went on strike (Milyutina, *Nakanune Pervoi Revolutsii v Moskve,* 1926). In September the same year the rector closed the University because the students organised a political meeting of 3,000 people in the buildings at which workers were present (*Revolutsia i RKP,* III, p. 275). The 1905 revolution secured some relaxations of government interference in the internal life of the universities : but when the new Minister of Education began inroads into their autonomy again the Moscow students went on strike (February—March 1911). Several thousands of them were expelled by the authorities. It was this action that led to the professorial resignations mentioned earlier.

These struggles and sacrifices, no less than the record of gifted teaching and research, are part of the traditions of Moscow University—traditions with which it entered the new era opened by the socialist revolution in November 1917. Of this new era much has been written by visitors to the Soviet Union in recent years. It will be sufficient here to give a brief summary.

The 400 teachers of 1914 have now grown to 2,000, including 125 Academicians and 380 professors. The student body in 1954 included about 13,500 full-time and 4,600 extra-mural undergraduates. All the nationalities of the USSR, and those of the people's democracies of Europe and Asia, are represented among them. The University now has twelve faculties—six in the natural sciences, six in the humanities—where there were four in 1914, and its library, which counted 30,000 volumes in 1825, 75,000 in 1855 and 160,000 twenty years later, numbers today more than five million volumes. In their five-year course the students can acquire both general and specialised knowledge, with the certainty of adequate employment and opportunities of further study when they graduate, in every kind of profession, thanks to the constantly expanding economy and rising living standards of their country. A symbol of the national appreciation and care for the welfare of the oldest Russian university is the magnificent new buildings on the Lenin Hills outside Moscow, which was opened in 1953 for the geology, mathematics and mechanics, geography, physics and chemistry faculties, with housing for their students and teachers. The names of its famous teachers frequently recur in the pages of the ANGLO-SOVIET JOURNAL.

" In what corner of Russia is there a university student whose heart would not respond with a sacred feeling of gratitude to Moscow University ", asked its first chronicler a hundred years ago. In May 1955, when enlightenment on a scale which he could never have dreamed of has reached every corner of what was once the Russian Empire, tens upon tens of millions of citizens of the USSR will ask the same question, with affection and pride.

Soviet Grain Production

N. S. Khrushchov

We print here the translation of an important section of Mr. Khrushchov's speech on January 25, 1955.

IN spite of the bad weather in some areas, and the drought—which meant a sharp drop in the gross output of farm produce in Southern Ukraine and the Volga districts—the country received more grain, potatoes, green vegetables, meat, butter and other produce last year than in 1953. This made it possible to increase the volume of obligatory deliveries and purchases of agricultural produce.

Such was the first result of carrying out the decisions of previous meetings of the Central Committee relating to agriculture.

A second and no less important result is that the necessary production facilities have been created for a big advance of agriculture in the near future. The winter crop sowing campaign has been over-fulfilled. The collective farms, machine and tractor stations (M.T.S.) and State farms have sown winter crops over an area of 100,000,000 acres, including grain over an area of 50,000,000 acres, i.e. about 4,000,000 acres more than in 1953. Compared with 1953, the area ploughed in the autumn for spring crops on collective and State farms increased by more than 30,000,000 acres.

Without slackening its attention to the development of industry, the State has increased its help to agriculture. Supplementary votes made it possible to supply the M.T.S. and State farms with considerable quantities of new machinery. In 1954 our industry supplied agriculture with 137,000 universal tractors (in terms of 15 h.p. units), and 46,000 tractor-drawn cultivators, 37,000 grain harvester combines and much other agricultural machinery. The M.T.S. now have a permanent staff. The total number of permanently employed workers in the M.T.S., including combine drivers, machine operators, lorry drivers and repair workers, is about 2,000,000, or more than 200 people for each M.T.S. The make-up of the executive, engineering and technical staffs in agriculture has been considerably improved. In accordance with a decision of the September meeting of the C.C., it was necessary to send 100,000 agronomists and livestock experts to the M.T.S. for work on the collective farms. At present there are about 120,000 of them working on the collective farms: each collective farm now has at least one agronomist or livestock expert, and many have both.

This reinforcement of the M.T.S. personnel is a considerable achievement, which has enabled us to enhance the role of the M.T.S. and to improve their work. Last year they carried out agricultural works over an area which in terms of land ploughed was more than 137,000,000 acres above the level of 1953.

During the period under review, steps were taken to strengthen even further the leading personnel on the collective farms. Thousands of party, Soviet and business workers, outstandingly successful personnel on the collective farms,

have been elected chairmen of collective farms. Many of them have already proved in practice that every collective farm, even the most backward, can quickly be transformed into an advanced and prosperous enterprise.

The growth in the marketable output of agriculture and the increase in State payments for obligatory deliveries and voluntary purchases of produce made in the second half of 1953 have led to a considerable rise in the cash incomes of the collective farms and of their members. Compared with 1952, the collective farms and their members received 12,000,000,000 roubles more for deliveries and sales to the State in 1953, and 25,000,000,000 roubles more in 1954.

The results of the past year show that this is only the beginning of the immense work which has yet to be done to solve the problems involved in the further development of agriculture. We cannot tolerate an atmosphere of unconcern, complacency or self-satisfaction over the initial results. The programme for the advance of agriculture worked out by the Party must be put into effect with untiring energy.

Earlier meetings of the C.C. thoroughly discussed the problems involved in increasing grain output. Today, in beginning the discussion on the problems of animal husbandry, we must base ourselves on the fact that the expansion of grain production is the decisive prerequisite for an advance in all branches of agriculture, and particularly in such an important branch as animal husbandry.

The February-March meeting of the C.C. pointed out that the existing level of grain production, both as regards gross output and as regards the marketable surplus, did not meet the growing needs of the national economy. If we had had grain in abundance, not only for the needs of the population but to satisfy the requirements of animal husbandry, the country would not be feeling the shortage of products of the latter.

It may be asked why, only a few years ago, it was considered that we had enough grain, while now the problem of making a drastic increase in grain output has been so urgently raised. To answer this question we must examine the changes that have taken place in our country since the war and are still going on. I will deal briefly with the most important of these.

First, as a result of the steps taken by the Party and the Government, the standard of living of the people has greatly improved and steadily continues to improve. In the first post-war years, when prices were high, many people had to limit their consumption. There might have seemed to be quite enough grain and other produce then to satisfy the needs of the country. As prices were reduced, the demand for foodstuffs and manufactured goods grew a great deal, and it is growing year by year.

Secondly, owing to the high birth rate and the reduced death rate, the population of our country is growing at the rate of more than 3,000,000 a year. Our requirements in grain and other produce are growing as a result.

Thirdly, the population of our towns and industrial centres is rising from year to year. During the last five years the urban population has grown by approximately 17,000,000. This is mainly due to a shift of part of the rural population to the towns : during these same five years more than 9,000,000 people have moved from the countryside to the towns. At first sight it might seem that this was a simple redistribution of consumption, since in either case the population needs the same quantity of produce. In reality matters are somewhat different, since yesterday's collective farmer who has today become a townsman is no longer an agricultural producer but a consumer of marketed foodstuffs.

Fourthly, we need big State reserves of grain, replenished annually. Our country cannot do without proper reserves : that is clear to everybody, and needs no demonstration.

Fifthly, we must have an adequate supply of grain for foreign trade.

Sixthly—and this is the main reason determining the need for a supplementary quantity of grain—we must greatly increase the output of fodder for animal husbandry.

Such are the main factors that have led to the considerable growth in our country's grain requirements. It is hardly necessary to prove that as time goes on the majority of these factors not only will not cease to operate, but will operate to an even greater extent. This means that we are bound to make the maximum effort to increase grain production year by year until we have achieved abundance.

In 1954 the country produced more grain than in 1953. In 1955 our grain production will be even bigger, owing to the opening up of new territory and the raising of yields in the old arable lands. This grain will be sufficient to meet the needs of the population. With present yields and the present structure of arable, however, the collective and State farms will not yet be in a position to satisfy the fodder requirements of animal husbandry fully. And it is precisely the grain requirements of animal husbandry that we used to leave almost completely out of account. It stands to reason that we must radically change our attitude to this problem, and for this purpose it is essential to increase grain output considerably in a very short space of time.

According to calculations made by a group of workers in the State Planning Commission of the USSR, the Ministry of Agriculture of the USSR and the Central Statistical Board, we need a gross output of 160,000,000 tons of grain. This will make possible full satisfaction not only of the needs of the people for grain, but also of the requirements of animal husbandry for fodder, as well as the maintenance of the necessary reserves.

Can we fulfil this task within the next few years ? Yes. All the necessary conditions and vast reserve potentials for this purpose are inherent in our socialist economy. Look at the definitive successes we have had in the production of wheat, the most valuable grain. The area under wheat grew from 100,000,000 acres in 1940 to 123,000,000 acres in 1954, while the proportion of wheat in our grain sowings increased over the same period from 36.4% to 44%. As regards the gross output of wheat, our country is first in the world. We have outstripped the U.S.A. as regards both gross output of wheat and output per head of population. Ever-increasing yields and the development of virgin and fallow lands will enable us to continue to increase our wheat harvests. As regards fodder crops, however, we are much worse off.

What sources can enable us in the next five or six years to reach the level of grain output we require ?

An increase in grain output on the old arable lands (by reducing losses in harvesting and by raising yields) ;

Further expansion of the areas under grain in the virgin and fallow lands ;

A considerable increase in our sowings of maize.

Let us examine each of these sources in greater detail.

Increasing grain output on the old arable lands

WE must and can considerably increase the grain output on these lands. For this purpose we have first of all to reduce the impermissibly large losses of grain during harvesting. It is quite intolerable that many collective and State farms should lose up to 25% of the harvest, and in some cases even more, as a result of prolonging their harvesting. It is easy to imagine how much grain is gathered in by those collective and State farms where harvesting lasts a month or even six weeks and more.

Here are characteristic data from the Sinelnikov and Pavlograd delivery

sectors of the Dniepropetrovsk region as to grain losses in relation to harvesting periods :

	Sinelnikov		Pavlograd	
	Harvested	*Lost*	*Harvested*	*Lost*
	(quintals per hectare)			
Prompt harvesting at the moment of complete maturity	29.5	—	32.3	—
Harvesting after the moment of complete maturity:				
after 5 days	28.4	1.1	30.8	1.5
after 10 days	23.4	6.1	24.6	7.7
after 15 days	21.6	7.9	22.8	9.5
after 20 days	18.5	11.0	21.7	10.6

So it turns out that after considerable expenditure on ploughing and sowing, and often after a good harvest, we prolong the harvesting and suffer great losses. This happens mainly because we have not yet got a sufficient quantity of machinery. We must considerably increase the output of combines, use them much more productively and reach a point where harvesting on every farm takes at most ten working days.

An important reserve means of increasing gross harvests is the raising of yields in all areas.

The raising of yields will continue to be the chief objective in our drive to advance agriculture. We must continue our determined efforts for high quality in agriculture, carry out all field work in shorter periods, dictated by agricultural technique, and introduce advanced experience and scientific achievements on the grand scale. In this connection the methods of tillage proposed by comrade Maltsev† deserve attention : they should be studied and applied sensibly, taking into account the particular features of the different zones of our country.

In order to raise yields in all cultivated areas it is essential to make more use of minerals and local fertilisers. It must be admitted that so far we have used mineral fertilisers less than do many capitalist countries.

Protective forest belts, together with other measures of agricultural technique, are of great importance in the struggle to increase and preserve the harvest, particularly in districts subject to droughts and dust storms. We must continue to develop protective forest belts.

The great possibilities which exist for increasing the yield of grain crops may be seen from the simple fact that in the experimental fields of the collective farms the yield of grain per hectare is double the average level of crop yields on the collective farms as a whole.

The further opening up of virgin and fallow lands

AS the February-March meeting of the C.C. pointed out, the most accessible and rapid means of increasing grain output is opening up virgin and fallow land. The experience of last year, in which a great deal was done in this direction, has convincingly proved the correctness of this directive.

As a result of great work by Party organisations on the collective farms, M.T.S. and State farms, and of the wholehearted work of those engaged in agriculture, a considerable increase in grain output and purchases was achieved last year in Siberia and Kazakhstan. In western Siberia the quantity of grain harvested was double that of 1953, while in the Kazakh SSR it was 35% more. The Altai Territory almost quadrupled its output of grain. It was precisely the

* 1 quintal per hectare = 1.49 bushels per acre. The figures have not been recalculated here, since the trend is what matters.—ED.

† See ANGLO-SOVIET JOURNAL, Vol. XV, No. 3 (Autumn 1954).

increased yield and the opening up of virgin land in these regions that made up for the drop in grain output after drought in several southern areas.

The Central Committee of the Party and the Council of Ministers have decided that by 1956 the area under grain in the new lands will cover not less than 70,000,000 to 75,000,000 acres. There is every reason to suppose that in the spring of this year the collective and State farms in the virgin and fallow lands will sow not less than 50,000,000 acres, and will completely plough up the land allocated for the 1956 harvest. The appointed target for opening up the new lands will be reached at the time set.

This work will continue. On these lands, in addition to wheat, we must also introduce maize for fodder purposes, which will considerably increase the grain harvest and fodder stores in silo. Reckoning that by 1960 part of these lands will be lying fallow or under other crops, there will still be not less than 70,000,000 acres under grain in the newly opened-up lands. With an average yield of even fifteen bushels per acre this will provide about 29,000,000 tons of grain.

Increasing the sowings of maize

THE United States of America have increased their gross output of grain, mainly by expanding the area under maize. This is the most highly productive crop over there. In the USA in 1953, 35% of the total grain area was sown to maize—nearly 75,000,000 acres, that is as much as was sown to wheat—while 72,500,000 tons* of maize were harvested, 55% of the total grain harvest. Nearly all the maize grown in the USA is used as cattle fodder. In addition, between 7,000,000 and 10,000,000 acres in the USA are sown to maize for silo and green fodder. It is precisely on account of their maize that the Americans have managed to ensure a high level of development in their animal husbandry. During the last ten to fifteen years the USA has considerably developed the sowing of maize with hybrid seeds, which yielded a harvest of over thirty-seven bushels per acre. During this same period the wheat yield in the USA was just under sixteen bushels per acre.

In the Soviet Union in 1953 only 8,700,000 acres were under maize, that is 3.3% of the total area under grain, and less than 4,000,000 tons were harvested.

The expansion of the areas under maize in our country is our biggest reserve possibility for increasing grain output. If we expand the areas under maize from 8,700,000 acres in 1953 to not less than 70,000,000 acres by 1960, this will make possible a considerable increase in our grain output. We have great opportunities for producing maize in large quantities, and it would be unwise not to make use of the advantages which expanding the area under this crop will provide.

The value of maize lies in the fact that this crop serves two purposes simul taneously : it adds to our grain resources, and the stalks provide good silage. All sowings of maize harvested at the stage of milky waxen maturity provide grain in the cob and at the same time succulent fodder in the shape of stalks chopped and siloed. The corn cobs, separately harvested, should be siloed and used on the farm as grain fodder for pigs and other animals and for poultry. The maize stalks should be siloed separately and used as succulent fodder for dairy and other cattle.

If maize is regarded only as a crop providing grain in the fully matured dry form, then of course in this respect our potential is still limited. But if we make use of the already accumulated experience of siloing and preserving corn cobs which have reached milky waxen maturity it must be recognised that there are favourable conditions in our country for greatly expanding the area under this high-yield crop.

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* 1 ton = 37½ bushels.—ED.

Why should we turn down this opportunity of increasing the output of maize as cattle fodder ? Why should we turn down fodder which can be got in the form not of dry grain but of preserved grain ? Cobs siloed in this way are fully equal to the mature grain as fodder. The grain, though yet not fully ripe, is just as nourishing as the mature grain. No one denies this. This being so, we must boldly expand the sowings of maize, even in those regions where it does not fully mature into grain but does reach milky waxen maturity.

Nevertheless, until quite recently maize was our Cinderella ; it was underestimated, it was sown only in the southern areas of our country, and that in negligible quantities. The agricultural map of the USSR for schools published in 1952 showed the northern boundary of maize sowings as passing from Chernovitz through Vinnitza, then far to the south of Kiev through Poltava and Voroshilovgrad to Makhachkala. Thus a vast area of the European part of our country, including many districts in the Ukraine, Byelorussia, the Baltic Republics, the central regions of the Russian Federation and the Volga, as well as Kazakhstan and all the Republics of Central Asia—not to mention Siberia and the Far East—were all regarded as unsuitable for maize growing. Perhaps maize really does not grow to the north of the boundary marked on the map? That is not true. In recent years, and particularly last year, we tried sowing maize in various areas in the Soviet Union, and wherever it was properly looked after, even in the northern areas, there were good harvests.

Take, for example, the Stalin collective farm in Chuvashia, where the chairman is one of our outstanding collective farmers, Korotkov. Comrade Korotkov came to see me at the beginning of last year. During our talk I asked him about the climatic and soil conditions in Chuvashia, and advised the sowing of maize. Comrade Korotkov took it up with a will. Maize seeds were sent to the collective farm, which sowed this crop for the first time, using the square-cluster method. Here is what these collective farmers now write to the Central Committee :

> We have fully assured our collectively owned cattle of all their requirements, thanks to the maize which we put down in cemented silos. Over the whole crop area of eighty-seven acres the maize came up like a positive forest, to a height of more than ten feet. We got nearly 1,200 bushels of silage per acre. We laid down 1,500 tons of silage reckoning the corn cobs. Apart from this we put down eighty tons of clean cobs into silo for our pigs, of which we have 500.
>
> But this is not all. Some of our scaremongers were sure maize would not mature into grain in our district. This has been shown to be nonsense. We are sending you corn cobs from our ordinary sowings on the fifteen acres we set aside for seeds. We collected 1,000 quintals of such cobs, that is 247 bushels per acre.

Good harvests of maize have been gathered in many parts of the country. In 1954, at the Yefremov State Experimental Station in the Tula Region, a new sort of maize, " Moscow 5 ", yielded in fully matured cobs over seventy-four bushels per acre, while " Moscow 3 " yielded over sixty-six bushels. At the Institute of Grain of the Non-Black Earth Zone (Nemchinovka, Moscow Region) over fifty-nine bushels of dry grain per acre were gathered, without the cobs, while individual best varieties produced a harvest of over eighty-nine bushels per acre, without cobs. At the Molotov collective farm in the Semiluksky district of Voronezh Region, 112 acres of late-maturing long-stalked varieties of maize produced a yield of 110 bushels per acre. At the Starodubsky State Experimental Station in the Briansk Region a yield of sixty-three bushels per acre was secured, without cobs. Stations of the Tatar Autonomous Socialist Soviet Republic obtained a yield of nearly forty-five bushels per acre, and the Gorodok Station of the Byelorussian Soviet Socialist Republic obtained a yield of sixty-seven bushels of dry grain per acre.

The collective farms of the Slavgorod district of Altai Territory, over an

area of 337 acres, obtained a yield of maize in cob varying from sixty to ninety bushels per acre.

In the very first year of the large-scale extension of maize into the central and northern districts, not only individual collective farms but whole districts and even regions obtained big maize harvests. Thus in the Grodno Region of the Byelorussian Republic 295 collective farms obtained a harvest of green maize for fodder varying from 440 to 880 and even more bushels per hectare. In the Archangel Region ten collective farms secured a harvest varying from 775 bushels to over 1,300 bushels per acre.

This work of introducing maize into various areas of the country must be considerably extended. Some people express doubt whether maize can reach the milky waxen stage of maturity in the northern districts. Experience shows that where wheat is grown, maize can achieve milky maturity. Even if in particular years the maize does not ripen to this degree, the collective or State farm will obtain a large quantity of green silage, and therefore the farm will not lose by it even so.

I should like to make this remark : in order to get more valuable cobs, not more than two stalks of maize should be left per cluster, otherwise the cobs will not develop properly, and the most valuable element, the grain, will be lost.

In the southern regions like the Ukraine, Moldavia, the northern Caucasus and elsewhere, where maize is grown as a source of grain and matures fully, it is also practicable to gather in part of it at the milky waxen stage. This will enable the collective and State farms to have a sufficient quantity of concentrated fodder in the shape both of siloed cobs and of stalks suitable for siloing. In this way the southern areas can be sure of succulent fodder for their dairy cattle, which will greatly increase the milk yield.

In individual areas which are particlarly warm and assured of moisture, like the Black Sea coast of Georgia and the Krasnodar Territory, the collective and State farms can secure two harvests a year of maize in the milky waxen stage of maturity ; this will increase fodder resources still further.

It should also be born in mind that in areas subject to drought maize is the most resistant crop and gives the highest yields. On the other hand, in districts were there is a heavy rainfall at harvest-time, which makes harvesting potatoes, grain and other crops difficult, maize can be harvested for silage in any weather.

This year and in the next few years we must ensure the supply of seeds grown in the south for the new territories where maize is to be grown. At the same time we have a great deal to do in respect of selecting the varieties most suitable for the new areas, varieties giving a high yield of green silage and grain of milky waxen maturity, varieties enabling us to push maize farther and farther north. We underestimate the possibility of increasing yields by expanding sowings with hybrid seeds, a powerful means of raising yields. The Ministry of Agriculture and the Ministry of State Farms should set about this properly, giving the experimental stations and research institutes the job of multiplying hybrid seeds, so that in the next two or three years we should be sowing only hybrid seeds.

It would be wise to raise the question of a certain expansion of maize sowings in place of autumn fallow. If maize is gathered in the first half of August it will already be at the milky waxen stage of maturity, and a field after maize harvesting will be ready in time for the sowing of winter grain.

It would be wise also to replace part of the crop areas of less productive grains, approximately 21,000,000 acres, with maize sowings, and to replace about 10,000,000 acres of various fodder crops (grasses and root crops) by maize. In addition, in various areas of the USSR, about 7,500,000 acres of less productive meadow, pasturage and waste land could be ploughed up for maize.

As a result of all these measures it will be possible to obtain many millions of additional tons of maize.

We can boldly undertake this considerable expansion in our maize sowings now that with our present level of mechanisation it has ceased to be a crop involving excessive labour.

If the gross grain harvest in the country reaches 160,000,000 tons, it will be possible to satisfy fully all grain requirements, to allocate greater reserves and at the same time to provide more than 60,000,000 tons of grain for animal husbandry, as well as a large quantity of bran, oilcake and combined fodders of various kinds. As a result of improving cultivation we shall also have an increase in the gross output of other crops highly important for animal husbandry—potatoes, fodder carrots, fodder beet and sugar beet. The productivity of our meadow land will also rise. Animal husbandry will thus acquire a stable fodder base for its development. It will become highly productive and highly profitable.

In order to make our possibilities of a greater grain output into a reality, we have to do a lot of hard work. We must first of all increase our output of tractors and agricultural machines, and we must considerably improve their utilisation.

To reduce losses and increase harvest, we must sharply cut down the period of harvesting, which in turn requires a substantial increase in the number of combines and also an extension in our output of windrowers, which enable us to harvest the grain in the period of its waxen maturity.

Our agriculture needs a great many new tractors and combines. I will not say now how many of these we shall need by 1960. We have to reckon up the real possibilities, both as regards using existing works to capacity and as regards building new works. But at any rate it is clear that we must pay more attention to the further technical equipment of agriculture.

We need to strengthen the incentives for collective farmers, and for the agricultural workers in the MTS and State farms, to work better in the first days of harvesting. There is a lot that is still wrong in this respect. Under the present system of payment the collective farmers and the MTS and State farm workers are not particularly interested in gathering in the harvest in the minimum time. It would be useful to pay at higher rates during the first days of harvesting. We should request the Ministry of Agriculture and the Ministry of State Farms to work out the necessary proposals in this regard.

The problem of a drastic increase in grain output is of exceptional importance in carrying out the great plans for building communist society. The drive to expand grain output is the drive to strengthen the economic power of our country and achieve a further advance in the people's well-being.

In putting forward the problem of a serious increase in the gross harvest of grain, the Party relies on the successes already achieved in the development of heavy industry, on the advantages of our large-scale socialist agricultural production, and on the most valuable experience of the advanced workers in agriculture who, in close co-operation with science, have shown the way to obtain high yields.

We need not doubt that, if we mobilise the efforts of the collective farmers, the working class and the whole Soviet people for the drive to expand our grain production, the nationally important task of obtaining an output of 160,000,000 tons of grain a year within the next five or six years will be successfully fulfilled.

From the text in PRAVDA, 3.2.55.

THE UNIFIED ELECTRIC POWER SYSTEM OF THE USSR

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ELECTRIFICATION as a decisive factor, as a measure of technical progress and of rapid future increase in labour productivity in all fields of the national economy, is an essential condition for the creation of the material and technical basis of communist society.

The level of electrification in the USSR rises constantly. In 1953 133,000 m. kWh were produced, 2.8 times as much as in 1940 and about 1.5 times as much as in 1950. In 1954 the output of electricity was three times as great as in 1940. After the completion of work now under construction, and the extension of existing power stations, the power resources of the country will be 1.75 times as great again. The fresh capacity of the stations being installed this year is 2.5 times as great as the total capacity installed during the first ten years of electrification under the GOELRO plan.*

In several districts, however, the power needs of the national economy have grown faster than the supply installations have developed. At the 1954 session of the Supreme Soviet of the USSR G. M. Malenkov said: "To secure a further growth of heavy industry, as the backbone of the entire national economy and of the country's might, it is necessary in the future, too, to develop in every way the building of power stations so that a mighty foundation of power in the form of electricity may be laid under each branch of production, including agricultural production. . . . Consequently we are confronted with the paramount national economic task of continuing to promote electrification at such a pace and on such a scale that the increase in power capacities must outstrip the other branches of the economy."

We must rapidly—say within the next two five-year plans—guarantee a great new leap forward in the development of the electrical resources of the national economy. According to our calculations, the present rate of electricity production will have to be trebled or quadrupled, and the entire energy resources of the country will have to be switched over to a qualitatively new technical and economic level. Soviet science as a whole and electrical science in particular must play a most vivid part in realising this object.

The unified electric power system (UEPS) of the USSR offers the most effective method of electrifying the country with maximum flexibility and efficiency.

The electric power system is a grid of parallel-operating power stations using high-voltage transmission lines, with access to a common power reserve (system reserve) and operating from a single control centre. The interconnection of systems by means of high-voltage transmission lines forms a UEPS and a unified high-voltage network (UHVN) in the areas covered by these systems.

The creation of a UEPS does not involve the synchronous parallel operation of all the stations. A single set—or all the turbo generators in a large station, usually a hydro-station—is interconnected for parallel operation with stations in another system. (In some cases the electrical connection between the systems may be effected through a group of consumer sub-stations, the electrical interconnection of which enables it to be linked up either to one system or to another.)

* State plan for the electrification of Russia, adopted in 1920.—ED.

The UEPS is not limited to the creation of powerful inter-system electrical transfers, but involves all the fundamental questions of power development.

Let us examine some of the most important changes introduced by UEPS in the development of the power resources of various districts.

The Soviet Union's hydro-electric resources are the richest in the world. The unification of electric power systems creates the prerequisites for the fullest and most economical utilisation of the inexhaustible hydro-electric resources. The utilisation factor of the water flow (production of hydro-electric power) is increased, as is also the output capacity of the hydro-stations, without the need for supplementary thermal power ; greater advantages are obtained from the use of the regulating properties of hydro-electric stations ; conditions are created for the construction of highly economical hydro-electric stations in the less populated eastern district and for developing these quickly to full capacity (cancelling losses of hydro energy and reducing to a minimum the under-exploitation of available power in the first years of operation of large hydro stations.)

When hydro-electric stations become part of a unified system, their regular capacity and output increase with the levelling out of fluctuations in the river flow taken over a year or longer (disparities between years of high or low water supply, irregular duration of flood periods, and so on). Thus more favourable conditions are created for optimum utilisation of reservoir capacity in hydro stations located on various rivers.

At the same time the necessary conditions are created for complete rationalisation of the use of fuel in thermal power stations (increase in production of heat energy by electricity with half or one-third the amount of fuel used for electricity produced in condensing cycle stations) and in combined energo-technological installations (utilisation of secondary energy resources and integration of technological processes on the basis of multi-stage use of fuel).

Moreover, an economy in the required generating capacity is ensured both by reducing the requirements in minimum essential spinning reserve (and in other kinds of power reserves in some cases) while maintaining the same level of reliability as in separately operating systems, and also by the diversity in peak periods in interconnected districts (the so-called " loading " effect from the combination of load curves of power stations located in different time belts).

The interconnection of electrical systems creates favourable conditions for the development in medium and small systems of larger individual units in thermal stations and for the development of the block principle (one boiler, one turbine), which has proved the most economical combination in the equipment of power stations. The change-over to large-size units and the consequent adoption of the block system are factors of the highest importance for increasing the pace of development.

A unified system also offers the most suitable conditions for the development of various types of electrical stations with differing power characteristics.

The development of hydro power and—in certain conditions—of district-heating electrical energy, and the improvement in the utilisation of condensing installations (load factor improvement), ensure appreciable fuel savings in the power economy. At the same time the local use of energy resources is increased and the transport of fuel reduced.

A unified system greatly increases labour productivity.

Finally, in case of disparity between the commissioning of new electricity generating installations at isolated points and the development of the consumer load, and also in case of serious breakdown, unification provides continuous supply and a means of dealing with breakdowns quickly by bringing the reserve capacities of several networks into play. The operational efficiency of the electricity supply industry is thus greatly improved.

The UEPS gives an appreciable economy in operational and capital costs as compared with individually operated power systems.

THE GOELRO plan provided for the creation and unification of electric power systems as a main trend in the development of the country's power resources. This trend is bound up with the planned distribution of the productive forces under socialism and with the rational utilisation of power resources.

The first unified systems are already in existence. There are the Southern (comprising the Dnieper, Donets and Rostov systems), the Central (comprising the Moscow, Yaroslavl, Ivanovo and Gorky systems) and the Ural (comprising the Molotov, Sverdlovsk and Chelyabinsk systems).

The building of the Kuibyshev and the Stalingrad hydro stations marked a new phase in the development of the electric power resources of the USSR.

The Volga hydro stations are the leading electric power centres of the UEPS of the European part of the USSR. In addition to such powerful transmission systems as the Kuibyshev—Moscow line and the Stalingrad—Central Black Earth District—Moscow line, the new high-voltage network lines which are to connect the Volga hydro stations with the Ural unified system and the Southern unified system are also vital links in the unified Volga system.

According to preliminary estimates, the establishment of the UHVN of the European part of the USSR will be complete when the production of electric energy has approximately trebled as against the present level. The UEPS must of course also include, in addition to the most important systems mentioned, the North-Western system (centred on Leningrad) and the Caucasian system. By then the powerful unified Siberian system will have been established. It is estimated that in size of annual output of electrical energy this system will exceed in net production the total national output of power at the beginning of the current five-year plan. We shall then be faced with the task of linking the Siberian UHVN with that of the European part of the USSR by powerful transmission lines connecting the lower Yenisei hydro stations with the Urals. A number of Kazakhstan power centres will have to be linked up with the UHVNs of Siberia and the European part of the USSR, simultaneously with the establishment and development of unified power systems in Central Asia.

Research analyses and estimates show that the establishment of the first line of the UEPS of the European part of the USSR will achieve an economy in capital and annual working expenses considerably exceeding the additional expenditure on inter-system electrical networks. The net saving on capital and annual working expenses will amount to hundreds of millions of roubles. A considerable saving of fuel will be ensured. There will be increased reliability and flexibility in the supply of electricity to the national economy of the highly industrialised areas.

The establishment of a UEPS for the USSR will condition far-reaching changes in the development of the power industry and of electrification in both new and established industrial areas. Electric power resources are in fact being raised to a new technical level.

The Kuibyshev and Stalingrad hydro stations have unique characteristics. The capacity of individual stations on the Angara and the Yenisei will be more than twice the record capacity of the Volga stations.

In the sphere of electrical transmission, in addition to commissioning the new 400 kV transmision lines (Kuibyshev-Moscow and Stalingrad-Moscow) now being built, we must also find a practical solution to the problems of high-voltage long-distance DC transmission and of AC transmission at voltages over 400 kV. Automatic control is to be used to operate these unified systems.

A number of district condensing stations are to install units with individual capacities of 200 MW and over, with extra-high terminal steam conditions

(170-200 atmospheres, 550-650°C.). In designing new condensing thermal power stations, the block system (one turbine, one boiler) is to be extensively used. New types of back-pressure sets with extra-high terminal conditions and individual capacities of 50-100MW are to be installed in district heating stations. In large towns with unfavourable fuel supply conditions, district heating stations with long-distance heat distribution are to be built beyond the green belt. District heating systems which also process heat are to be set up. In district heating power stations the chemical processing of fuel is to be widely used : district heating stations will become sources not only of electric power, steam and hot water, but also of gas (to supply towns) and tar (as a valuable chemical raw material). In some districts gas turbine power stations based on underground gasification of coal are to be built. Automatic control is to be widely used in district heating power stations.

A radically new factor in the development of the power industry is the advent of the atomic power station.

The first industrial atomic power station, with a capacity of 5,000 kW, began work in the USSR on June 27, 1954, supplying electricity to industry and agriculture. The Soviet Union thus established its priority in this most vital branch of power production.

The ever-increasing utilisation of atomic energy will exert a far-reaching and multiple influence on the development of power resources in the USSR.

BEFORE the second world war, the unification of power systems and the establishment of a UHVN was in progress in the capitalist countries (Britain, France, Germany, the USA), in spite of the obstacles created by the modern capitalist system itself. A decisive part in this was played by the war factor, which conditioned the lopsided development of power resources as a whole.

In Britain a unified high-voltage system (grid) was created before the war. This linked up separate systems which now include over 200 power stations with a total working capacity of 15.5 m. kW with an annual output (1951-52) of 61,000 m. kWh, that is about ninety per cent of the country's entire power production. The high-voltage network in Britain covers some 7,500 km, including 6,700 km with a voltage of 132 kW.

During the war a considerable number of the breakdowns caused by bombing were overcome without interruptions in the electricity supply, thanks to this high-voltage network ; in the remaining cases the duration of the breakdowns was greatly reduced. The high-voltage network allowed the systematic utilisation of the considerable power of the south-eastern districts of Britain for supplying war industry enterprises situated in the south-east and elsewhere. British electrical journals quote figures regarding a projected new network, in addition to that now existing, with a voltage of 275 kV, to increase the exchange of power between the systems.

In France, a network with a voltage of 220 kV, covering about 6,500 km (1953), connects the main power centres, the hydro stations of the Massif Central, the Alps and the Pyrenees to the thermal stations of the Paris district and the north. The main structure of the network, with a voltage of 220 kV, stretches from south to north and has a working capacity of up to 750,000 kW.

In the United States, the high-voltage network scheme is a web of networks of varying voltages (the number of voltage gradations runs into dozens). Several inter-district systems are in operation. During the war a unified system was established, with a capacity of 4 m. kW, covering the north-western states on the Pacific coast. Work on these lines has also been carried out since the war.

In the capitalist countries, the path to a unification of electric power systems and the construction of a UHVN is beset by formidable obstacles. The US

Federal Electrical Power Commission, which investigated the development of the American systems, and also several power specialists in Europe, have had to admit as much.

For example, not one but a number of power systems belonging to various companies are in operation in some states. The exchange of power and electricity is conducted on the basis of commercial agreement. According to data published in the American press (P. Sporn, *Electrical Engineering*, XII, 1953), agreements with fiifteen electric power companies had to be concluded in order to supply power to an atomic factory under construction in Portsmouth, Ohio, and to cover the factory's load of 1.8 m. kW these companies have an annual output of electric power amounting to about 15,000 m. kWh.

Naturally, in such circumstances, it is impossible to ensure the most rational utilisation of power resources and power equipment from the general economic point of view. American monopolies are not interested in local power resources if using fuel transported from a distance brings in greater profit. This also explains the absolute and relative increase in the power output of thermal power stations burning oil and natural gas. In 1953, USA general consumption stations using oil and natural gas produced thirty-five per cent of the power as compared with about eighteen per cent in 1940. Oil was responsible for over 53,000 m. kWh and natural gas for over 100,000 m. kWh. Many such examples can be cited testifying to the contradictions in the development of the power industry under capitalism.

The development of the electric power systems of the USSR differs radically from that in capitalist countries. This is directly due to the radical differences between the basic economic law of socialism and that of modern capitalism.* It must also be borne in mind that in point of size other countries cannot be compared with the USSR. The area of the USA is about one-third that of the Soviet Union, and that of Britain, France and Germany about one-fortieth or one-fiftieth.

SCIENTIFIC questions connected with the creation of a UEPS in the Soviet Union turn on the solution of two main problems : working out the theoretical bases of the development and unification of electric power systems of complex structure, and working out the scientific bases of the general plan of development of the electrification of the national economy and of the project of a UEPS for the country as a whole.

Several dozen large-scale district electric power systems have been created in the USSR. They vary in type of consumption, in curves of daily and annual load schedules, in structure of generating equipment (hydro, district heating, condensing and thermal power stations of various types), in power characteristics and in configuration of networks. Most Soviet electric power systems supply the districts they serve not only with electric power but also with heat (steam or hot water) from the thermal power stations.

The application of the new methods of chemically processing fuel developed at the Krzhizhanovsky Institute of Power marks a decisive new stage in the development of electric power systems. In addition to power, steam and hot water they will supply the country with high-calorie gas. The use in industry and power stations of underground gasification of coal will play an important part in the development of individual electrical systems.

In such systems a close power connection is established between producers and consumers of electric power, gas, steam and hot water. It is essential to work out the scientific bases for the creation of comprehensive electric power systems, for their optimum structure and for their scale of distribution of electrical energy, and to work out the theoretical bases of the unification of electric

* See *Economic Problems of Socialism in the USSR*. J. V. Stalin, 1952.—ED.

power systems. The creation of a basic scheme for district power in the USSR, the ground-plans for which were set out in the works of G. M. Krzhizhanovsky in the 1920s, is of great importance in tackling this problem.

The development of theoretical foundations and a basic scheme for district power are of great importance for tackling practical problems concerning the industrial specialisation of districts, the distribution of power-consuming enterprises and the fuel used by power stations and industry.

For example, there still prevails the erroneous notion that a hydro station with cheap water power is *always* an advantageous centre for the disposition of power-consuming industry. Yet one of the determining factors in settling this question is the power balance in the district served by the hydro power station. In districts with a narrow margin between supply and demand, for instance, the distribution of power-consuming industries not organically connected with the utilisation of local mineral resources not easily transportable necessitates an increase in the power output of condensing stations. Economically this means that power-consuming industries will be fed not by water power but by electric power supplied by thermal condensing stations. Such a situation will arise in a number of districts in the European part of the USSR, where large-scale hydro stations producing relatively cheap power are being built. An altogether different state of affairs is to be observed in eastern districts with abundant reserves of cheap water power.

Theoretical bases for district power organisation, a basic scheme, maps of power-producing districts, and appropriate recommendations concerning the disposition of power enterprises according to the fuel resources of the power stations and of industry, must be worked out.

A combination of electrification, district heating and gasification is the main trend in the development of socialist power resources. The nature of electric current makes it a universally convenient type of energy for all processes. In industry, the degree of electrification of processes using motive power exceeds ninety per cent. On the other hand, the degree of electrification in high- and low-temperature technological processes meets with the two following obstacles : first, electric current is still expensive compared with other types of energy (particularly gas for high-temperature processes* and steam or hot water for low-temperature processes) ; secondly, every percentage increase in the electrification of high-temperature processes in modern-scale industry demands many further thousands of millions of kWh of electrical energy and further millions of kW of electrical output.

There is at present no complete theory and no method of demarcation of the spheres of application of electric power and gas and other directly utilisable types of fuel in high-temperature processes, and questions of applying various energy-carriers in low-temperature processes have not been worked out (although individual research efforts in this particular field were made at the Institute of Power before the war).

This frequently leads in practice to inadequate hit-or-miss solutions.

It is essential to develop a general method in tackling problems of the choice of optimum types of energy (energy-carriers) in various processes and branches of industry, by combining electrification, district heating and gasification ; and in doing so it is vital to take into account also the latest scientific and technical achievements in the principal branches of power engineering, as well as

* In a number of high-temperature processes which in technological conditions of production can be supplied either by electric power (in electric furnaces) or by gas (in gas furnaces), the relative capital investment per utilisable megacalorie is several times as high in electrification as in gasification using natural or coke gas or gas supplied by chemical processing. In areas where there are sources of cheap gas (natural, coke or chemically processed) and where electric power is produced in condensing stations, the production cost of gas per megacalorie is also lower.

the power-distribution characteristics of districts and systems. On the basis of these investigations, practical solutions must be found as regards the disposition of the most important industrial enterprises (engineering, metallurgy, chemical processing, and so on).

Water power is destined to play an ever-increasing part in the national balance of electric power. In 1953, while the overall output of power in the country increased 2.8 times over 1940, the output of hydro power increased 3.9 times. Hydro stations whose total capacity will amount to tens of millions of kW have reached various stages of planning. Hydro stations are to operate within electric power systems of varying structure and varying power characteristics. Many Soviet electrical specialists have devoted their research work, especially since the war, to the capacity selection and power characteristics of hydro stations. The post-war planning of hydro stations has provided abundant work in this sphere. The starting of vast new projects connected with the exploitation of the Siberian rivers, particularly the Angara, the Ob and the Yenisei, and also the construction of hydro stations on mountain and lowland rivers both in the European part of the USSR and in Central Asia, has given rise to a number of fresh problems, however. Among these are, for instance, calculating fluctuations in flow over many years at different levels of regulation at hydro stations and with varying flow characteristics ; planning power characteristics for the cascades of hydro stations ; calculating the influence on the selection of capacity and the power characteristics of hydro stations of the dynamics of the development and unification of systems, and so on.

It is essential to study the vast experience amassed in planning hydro stations, and to control the power utilisation, the capacity and the unification of systems of varying types. A special study must be made of the technological, economic and power characteristics of consumption regulators operating on AC power consumption (annually and over many years). Some theoretical research work has been done in this respect, both before and since the war. These investigations should be followed up, especially as regards consumption regulators, over a long-term period, taking into account the specific power characteristics of hydro stations in the eastern areas and also the latest results of scientific and technical research and of the experimental industrial installations concerned with the technology of several branches of industry (for example metallurgy).

In spite of the higher rate of growth of hydro power resources, thermal power stations will remain the centre of gravity of electric power production in the country for some years to come. Even in the projects in the two next five-year plans, about two-thirds of the country's electrical power balance is expected to come from them. In addition to the large-scale development of industrial and urban thermal power stations, a considerable part (more than half) of the capacity of thermal power stations is to be allotted to condensing power stations.

Soviet electrical specialists must decide on the most advantageous capacity, type, size and power characteristics of condensing and district heating units in systems differing in structure, and must develop economic and power characteristics and define the spheres of application of new types of basic power equipment at thermal stations (gas turbines, one-turbine-one-boiler block system, fuel processing to yield gas as well as power and heat, underground gasification, and so on).

Since the war Soviet electrical specialists have carried out a series of theoretical and drafting researches on power reserves and their applicability to certain types of system. This research work must be developed and results must be further publicised. Questions of the allocation of reserves in complex systems, in hydro stations with varying economic and water-power characteristics, and in thermal stations of different types, are vital but have been less thoroughly investigated.

The electrification of main railway lines is an important part of the development and unification of power systems. The next two or three five-year plans envisage the electrification of the heavily loaded main railway lines linking the principal economic districts of the country, covering some 30,000 km. The enhanced efficiency, from the standpoint of the national economy, obtained by tackling complex problems of railway electrification in close conjunction with the development and unification of district systems, and with the supply of electricity to agricultural districts adjoining the railway network, is generally recognised. To tackle the problem by supplying electricity for the railways separately, isolating this supply from the development of district systems and from the electricity supply to adjacent agricultural areas, means a considerable increase in initial outlay and in operational expenses, and retards both the railway electrification and the rational development of district systems and of agricultural electrification. Scientific bases and radical schemes for a combined solution to the problem of the electrification of the railways and adjacent areas must be worked out in close conjunction with the development and unification of systems, taking into account both the new system of electric traction operating on single-phase normal frequency current and also the existing direct current system, and bearing in mind the prospect of redesigning for the adoption of higher voltages.

The step forward which the unified high-voltage network constitutes must not lead us to believe that we either can or should bring about the simultaneous unification of all the electric power systems in the country. That would be both uneconomic and impracticable. An order of priority for the unification of systems and for the construction of individual links in the unified high-voltage network is required. This in turn makes it necessary to tackle questions of inter-system load characteristics at different stages of development, of optimum schemes and of the extent of inter-system exchanges, and of the changes and development that will occur in power systems after unification.

The determining factor in solving these and many other problems connected with the development of power systems and the creation of a UHVN is a detailed study of the energy balance and of methods of construction, and the selection of the optimum energy balance in complex systems of varying type.

Solving the above scientific problems of the development and unification of complex power systems will serve as a basis for developing the fundamentals of a general plan for electrifying the national economy and creating a basic scheme for a UEPS.

This requires preliminary research work, planning and project investigation.

Above all, energy balances for different stages of development must be established for the principal districts at an output level of 450,000 or 6-700,000 m. kWh ; general schemes for the utilisation of the principal rivers must be completed ; basic plans for the unification of systems and the creation of UHVNs in Siberia, Kazakhstan, Central Asia and the European part of the USSR must be worked out.

From VESTNIK AKAD. NAUK SSSR, 11, 1954, pp. 9-18.

Translated by G. Froud.

Soviet Learned Journals

We publish below some brief outlines of the scope and purport of six of the leading academic periodicals of the USSR of recent date.

***Iskusstvo* (Art)**

IT is difficult to do justice in a short review to this magnificent bi-monthly periodical published by the USSR Ministry of Culture and the Artists' Union. Externally it resembles the *Studio* of old (not the attenuated present-day version). It is printed on beautiful glossy paper (eighty pages) with very many fine reproductions of paintings and sketches, both in black and white and in colour. Some of the main articles in No. 5 of 1954 are as follows :

The Painters of Trans-Caucasia (Azerbaidzhan, Armenia and Georgia), by F. Rogniskaya ; *New Works by the Painters of Leningrad,* by V. Shvedov ; *Indian Sketches by A. Gerasimov,* by A. Zamoshkin ; *A Master of Ornament* (exhibition of Korimov's carpets), by M. Tarlanov ; *Progressive Painters of Modern Italy,* by E. Khersonskaya ; *The Odessa State Picture Gallery,* by V. Afanasiev ; *The Satire of Daumier (1830-40),* by O. Roitenborg ; *An Exhibition of Western European Water-colours,* by O. Lavrov.

These are only some of the more important items. There is an interesting section on new books on art, and a page entitled " Chronicle of Events ", which enumerates the various exhibitions of paintings and sculpture and applied art which are being held all over the USSR, many of them by local talent. We read of exhibitions even in such remote places as Alma-Ata, Murmansk and Khabarovsk. There is no doubt of the immense surge of artistic creativity that is welling up among all the varied peoples of the USSR.

Xenia Fielding Clarke.

***Teatr* (Theatre)**

THE official journal of the USSR Ministry of Culture and the Dramatists' Association, this is a monthly periodical on playwriting and theatrical matters. In No. 11 of 1954, the first item is a new play by Alexander Stein in four acts entitled *Personal Affair,* set in present-day Moscow. This is followed by twelve letters of dramatic criticism written by Gorky ; among these is a letter to Afinogenov, written in 1934, about *Distant Point,* and one to A. N. Tolstoy, written in 1932, on *Patent 119.*

Gennadi Osipov writes on *The Driving Force behind Soviet Playwriting,* and Z. Kedrina has an article entitled *Their Own Way Towards a Common Aim*—notes on the work of playwrights in various national republics.

A Producer's Notes, by Alexei Popov, is an outspoken analysis of the needs of present-day Soviet drama and criticism. N. Velekhova and V. Sappak write on the new type of " heroic figure " in current Soviet playwriting and the various aspects constituting a positive leading character. *The Spoken Word,* by P. Vasiliev, is a producer's notes on various reasons for indistinct speech on the stage. This is followed by G. Vladimov's article on *Women Characters in Anatoly Safronov's Plays,* an article by Z. Vladimirova on *Artistic Maturity,* and one by A. Karaganov entitled *When the Author is Young.*

Besides a great number of photographs of scenes from Soviet plays recently performed in various German towns (and also in towns in Poland, Hungary, Bulgaria, Rumania, Czechoslovakia, China, Korea and Albania) there are

thirty-two photographs of well-known Soviet actors in various roles, with short articles by all of them on why they acted the parts in the way they did.

Theatre and television news is followed by news of first performances of plays by young local authors all over the Soviet Union. Finally, the last item is based on an interview given by Bronislaw Dombrowski, of the Polish National Theatre, after the Polish company had played for a fortnight in Moscow. Mr. Dombrowski expresses his gratitude to the people and the artists of Moscow for the warmth of their reception.

T.L.

***Vestnik Akademii Nauk* (Academy of Sciences Herald)**

THE *Vestnik* (Herald) of the Academy of Sciences of the USSR, of all the scientific journals of the USSR, is the most exciting for a British scientist to read, for it gives an account of a society where science is consciously planned to achieve objectives which will benefit all the members of that society. The rate of increase in the number of scientists, particularly those going to teach in schools, demonstrates the confidence which scientists and non-scientists in the USSR have in each other, and is an impressive contrast to the attitudes revealed by the current shortage of science teachers in Britain and by the calls for a moratorium on scientific research.

Not all the research in the USSR is controlled by the Academy (various ministries have research establishments as well as factory laboratories), but the Academy is the main policy-making body. The presence of Academicians in non-Academy institutes gives the Academy added influence. The institutes of the Academy are responsible for most of the pure research in the country.

The *Vestnik*, with a circulation of about 7,000, reports the activities of the Academy in some detail. Its nearest parallel in Britain would be *Nature*, without correspondence and advertisement sections. The editorial and the principal articles in the *Vestnik* are usually on aspects of the application of science in the economy of the USSR. The leader in No. 11 (1954) is on increasing the help given by scientists in bringing virgin land into cultivation. In the same number are two substantial articles, on *The unified electrical power system of the USSR* and on *Some questions of forestry science*. Perhaps the most important papers are the annual reports of the work of the Academy and the outline of future tasks and perspectives. Such reports occupied most of the third issue of 1953.

Each month specialists present review articles on current developments in their subjects. These often presage organisational changes, such as the establishment of new institutes, and presumably serve as papers either introducing or summarising discussions.

A regular and notable feature is the attention paid to science in foreign countries, especially in the people's democracies. Russians give accounts of the foreign congresses which they have attended; distinguished visitors describe science in their own countries, and there are monthly digests of reports on scientific topics from the press of the people's democracies. In No. 11 (1954) Academician N. V. Belov reported on the Third International Congress on Crystallography, held in Paris, discussing both the scientific and the social aspects of the congress. No. 10 (1954) has special articles on the occasion of the fifth anniversary of the proclamation of the Chinese People's Republic. The Presidium of the Academy, and its President A. N. Nesmeyanov, contribute special messages, and Kuo Mo-jo, President of Academia Sinica, has a long article on *Science in New China*.

In the same number there are special articles on the fifth anniversary of the German Democratic Republic, and a group of three papers on the training of Soviet scientists, particularly on their philosophic education.

The resolutions of the Presidium of the Academy on organisational changes, and reports of the Academy institutions on their work, appear regularly, as

do accounts of scientific conferences. Biographies of new members, congratulatory messages on honours or birthdays, and the obituary columns enable the activities of personalities to be followed.

Abstracts of theses successfully submitted by members of the Academy institutions for D.Sc. degrees are published, together with the titles of candidates' M.A. and M.Sc. theses.

Book reviews, sometimes very critical, and annotations of new books occupy five to ten pages in each number. No. 12 in each year contains author and subject indexes.

A. L. Mackay.

***Vestnik Drevnei Istorii* (Ancient History Herald)**

THE *Vestnik Drevnei Istorii*, published by the Academy of Sciences of the USSR in four quarterly numbers of about 250 pages each, is the principal Soviet journal devoted to the history of the ancient world. It is mainly concerned with the Greco-Roman world and the ancient Near East, since these are the fields in which most work has been done in the past, and in which source material is most readily available. But in principle its scope is world-wide; and in recent years it has published many studies on the history of China, India and South-East Asia in ancient times.

As compared with similar journals in western Europe and America, the *Vestnik* devotes more space to questions of economic, social and cultural history, and carries fewer articles on political and military history, or on minor antiquarian points.

Each number includes four sections; articles, often of some length; reviews; notes and short articles, often on limited themes; and publications of original material.

The four numbers for 1954 included twenty-one full-length articles. The Estonian scholar M. L. Gelzer in two papers discusses the social organisation of the cities of the north Syrian coast in the second millennium BC, in the light of the recent brilliant work by French archæologists at Ugarit and Byblos. Four articles are devoted to the works of Aristophanes, considered both as literature and as a priceless source for the social history of fifth-century Athens; one of these—a study of the literary stereotypes of slaves in Greek comedy—is by the veteran classical scholar S. I. Sobolevsky, whose first book appeared in 1890, and who recently celebrated his ninetieth birthday by publishing an edition of the *Adelphi* of Terence, with a lengthy commentary. Three articles are contributions to a discussion on the transformation from slavery to feudalism, which has been proceeding in the pages of the *Vestnik* for more than two years. Some scholars put the establishment of feudal relations of production, at any rate in the western empire, as early as the great civil wars of the third century AD; others believe that feudal relations did not come into being until the Roman state had been destroyed in the late fifth century; and many Soviet Byzantinists were inclined to date the crucial change in the eastern empire in the seventh century or later, and by implication to advocate a similar periodisation in the west. The discussion thus far, though arriving at no definite solutions, has brought out vividly the extreme complexity of the course of events in the late Roman empire and the Dark Ages, drawn attention to the topics on which our information is insufficient, and indicated a number of fruitful lines for research. The discussion continues.

The book reviews, which are usually long and critical, deal both with Soviet publications and with foreign works. In 1954, for instance, notices were printed of five English books, five German, two Polish, two Bulgarian and one French.

The more technical aspects of archæology are dealt with in other Soviet periodicals, but the *Vestnik* frequently publishes notes on new material of immediate interest to historians. Such in 1954 were the Parthian Pehlevi

documents from the second century BC Parthian capital of Nysa, near Ashkhabad in Turkmenia, which is now being excavated. These, together with other material from Nysa published elsewhere, throw new light on the hitherto rather mysterious origins of the Parthian state, and on relations between the Mediterranean world and Central Asia at this time.

The *Vestnik* is printed in 4,200 copies.

R.B.

***Vest. Akad. Nauk. Otdeleniye Literatury i yazyka* (Literature and Language)**

THIS is the leading academic journal on philological questions and on literary history. It is published six times a year by the USSR Academy of Sciences Department of Language and Literature. No. 5 of 1954 contains the following :

Problems of Compiling the History of Russian Literature, by D. D. Blagoy. This article discusses the new method adopted in preparing a new three-volume concise course on the history of pre-Soviet Russian literature, undertaken by the Institute of World Literature, in which the author of the article is taking part. There are to be three main divisions, corresponding to the main periods in the history of the Russian nation, with sub-divisions " containing defined cycles of literary phenomena also connected with some particular historical moment in the life of Russian society ". Outstanding individual literary works which played an important part in the development of social thought are to be discussed synchronically rather than within each individual author's activity. The aim is to achieve full understanding of the literary process as such, by examining each literary phenomenon " in its own time and place " without, however, " dissolving the creative work of the authors, especially the outstanding ones, in the generalised literary process ".

Results and Prospects of the Study of Old Russian Literature for the Purpose of producing a History of Literature, by D. S. Likhachev. This is a useful summing-up of work done on the literature of the eleventh-seventeenth centuries, and indicates the large quantity of material awaiting proper cataloguing and publication, as well as giving examples of useful collaboration between students of old literature and pure historians.

Progressive British Circles in the Drive for a Progressive Study of Folklore, by L. M. Zemlyanova. This is based on material taken from British publications ; it includes criticism of the prevailing conservative interpretation of folklore, and a description of the work of students of modern folklore—popular songs and poetry, mainly English and Scottish.

An Unknown Story by Maxim Gorky, by S. Y. Brodskaya. This is a translation from the German of a story, of which the Russian text has not survived, which appeared in *Das Deutsches Buch* in 1923, with a discussion of its autobiographical character and its connection with other stories of Gorky's.

The Sofia Collection of MSS from the Herzen and Ogarev Archives, by S. A. Makashin. Here are described eighty-two items from the 1850s and 1860s, consisting of Herzen's and Ogarev's MSS, letters received by them from various persons, and MSS and documents sent from Russia to the editors of *Kolokol* (The Bell).

Alexander Ivanov Beletsky (on the occasion of his seventieth birthday), by N. K. Gudziy. A summing-up of forty-five years of scientific and pedagogical activity in the sphere of literature.

Bibliography of the Works of A. A. Freiman (on the occasion of his seventy-fifth birthday), by I. M. Oransky. A list of the published and as yet unpublished works of this very distinguished Iranian scholar.

The issue also contains reviews of the following books : *History of Russian Literature,* by V. D. Kuzmin ; *An Outline of the History of the USSR,* Vols.

I and II ; *History of Moscow*, Vols. I and II (the two latter from the Institute of History of the USSR Academy of Sciences) ; *Decembrist Writers*, Vol. I, by A. N. Sokolov (Vol. 59 of *Literary Heritage*).

News items are : a summary of the debates at the All-Union Conference on the problems of the study of the epos of the peoples of the Soviet Union ; a summary of papers and discussion at the conference on the problems of the study of old Russian literature ; and a report of the Sixth All-Union Conference on Pushkin, at which, in connection with the 300th anniversary of the reunion of the Ukraine with Russia, papers were read on Pushkin's travels in the Ukraine, his interest in that country, his influence on Ukrainian literature, translations of his works into Ukrainian, and so on.

T.S.

***Voprosy Ekonomiki* (Problems of Economics)**

THE journal *Problems of Economics* is one of the two main general economic journals appearing in the Soviet Union. It is produced monthly by the Institute of Economics of the Academy of Sciences of the USSR, and differs from its bi-monthly contemporary *Planovoye Khozyaïstvo* (Planned Economy), produced by the State Planning Commission, in publishing articles usually of a rather more academic nature and covering a somewhat wider field.

In addition to straightforward articles by contributors on home and foreign economic problems, and book reviews, it frequently carries surveys of the current situation in some field. Thus, in the last quarter of last year, there were surveys of the Japanese economy and living conditions in occupied Japan (No. 10), of Anglo-American conflicts over rubber since the war (No. 11), and of the results to date of the virgin land campaign in Siberia and Kazakhstan (No. 12).

Another aspect of the publishing policy of the Institute of Economics is the articles frequently included on scientific life—reports of discussions and conferences on topics of economic interest held by learned bodies and the like. No. 11, for example, contained a report of a conference taking place in the town of Stalino, called by the Institute of Economics of the Ukrainian Academy of Sciences jointly with the Regional Committee of the Communist Party of the Ukraine, to study the potentialities for increasing production in the factories and pits of the Donbas. The same number contains an article devoted to the review carried out at the end of the academic year 1953-54 of the research work done by students of nine Moscow institutions of higher education concerned with economics and participating in this city review. An important conference on statistical questions called by the Soviet Academy of Sciences, the Central Statistical Board and the Ministry of Higher Education of the USSR is very fully reported (thirty-six pages of small type) in No. 12. A number of articles on statistical problems appearing in 1952 and 1953 indicated the great interest in these questions being taken by many Soviet economists. An editorial calling for improvements in Soviet statistical methodology and practice appeared in No. 11, as an introduction to the report on the conference—which took place, incidentally, as long ago as March of last year.

Interesting features sometimes appearing in *Voprosy Ekonomiki* are discussion articles. Two appear in No. 10 of 1954 : one is devoted to analysis of the make-up of the Soviet national income and the other to the nature of costs in Soviet industry. No doubt the new year will see further contributions.

A general methodological and informative article (or consultation, as is the Russian term to describe such pieces) on labour productivity—a topic not usually associated with his name—is contributed to No. 11 by the well-known Armenian economist A. Arakelyan.

Among the articles appearing in the three numbers reviewed, we may mention one by Dr. Theodor Prager on the post-war economy of Austria (No. 10),

a characteristic piece on labour conditions, employment and living standards in West Germany by the German economist Jürgen Kuczinsky (No. 12), and one by the veteran Academician Stanislav G. Strumilin on planning methods (No. 11). His article provoked a reply by P. Moskvin in the next number developing the theme further. Other themes covered by articles during the quarter included the part played by the credit system in the development of Soviet agriculture, and the rôle of the machine and tractor stations as the industrial basis for collectivised agriculture. In the field of foreign economic relations, one article appeared on the part played by exchange rates on the capitalist world market (No. 11), and another was devoted to the Soviet Union's policy on, and participation in, international trade (No. 10). G. Ganshin contributes to No. 10 on the subject of the position of the state sector in the Chinese economy.

Several book reviews of quite important new works appeared in *Voprosy Ekonomiki* in the course of the three months. We may mention E. B. Genkina's *The Transition of the Soviet State to the New Economic Policy (1921/2)* (504 pp.), reviewed by I. Gladkov, the author of several well-known books on the early years of the Soviet economy, and another work on the finances of capitalist countries by E. Bregel (both of these were reviewed in No. 12), as well as a review of a new book by the French Communist agricultural specialist Waldeck Rochet in No. 10.

The last-mentioned also contains an interesting letter about a book on state credit, written by the Decembrist M. Orlov some time between 1824 and 1832 and later published anonymously, the full text of the deletions from which made at the time by the censorship for the Russian edition has been found in the Lenin Library. The writer of the letter (the historian of economic thought F. Morozov) clearly considers that less than justice has been done in the past to Orlov as an early Russian writer on economics.

The circulation of *Voprosy Ekonomiki* is 55,000.

G.B.

All the journals surveyed above, and many other academic publications, are available for reference (and on loan to SCR members) in the SCR Library, Monday-Friday, 1.0 p.m. to 8.0 p.m., Saturday, 10.30 a.m. to 4.0 p.m.

Tribute to Raissa Struchkova

ONCE again Soviet dancers have, as the *Star* of December 9, 1954, said, "swept the audience into an energetic torrent of cheers and applause". If art by its direct appeal to the senses arouses an overwhelming enthusiasm, there must be something great in it. Any suggestion to the contrary would be almost an insult to the British ballet-loving public. And yet some critics made slighting remarks about Struchkova, just as they did the year before about Shelest. What is the reason? Inadequate appreciation of the principles of the classical dance, or some subconscious psychological motive? Whatever it may be, there is no ground for concern at the status of ballet in this country. Friendly emulation can only raise its standards and popularity, and there should be an exchange not only of individual artists but of entire companies.

Both last year and the year before, some criticism was to all intents and purposes identical. The expression "broken wrists" used with reference to Shelest* has in the case of Struchkova been replaced by "fussy wrist movements". In a way this opinion is complimentary, for it distinguishes Struchkova from those dancers whose arms were described by M. Olivier Merlin in *Le Monde* of September 30, 1954, as "*des tiges de sémaphore*" in contrast to Violetta Elvin's graceful plasticity, acquired in the Moscow school. The soft, melodious expressiveness of Struchkova's arms is a poem. In accordance with the canons of the Russian classical school, the "play" of her hands is controlled solely by the style of the dance.

Struchkova is richly endowed with physical aptitude for dancing. She has a graceful, well-proportioned figure, and at the same time she has something of Nijinsky's mechanism in her technical equipment, which enables her to perform the same prodigious leaps. Take, for example, the moment in *Walpurgisnacht* when she hurls herself without a preliminary run and describes a parabola in the air. It may be argued that Nijinsky's bound through the window in *Le Spectre de la Rose* was a classical jeté in a romantic ballet, whereas Struchkova's flight is an acrobatic one in a Bacchanalian orgy. But whether it is dictated by Apollonian logic of style or by Dionysian frenzy, the defiance of the law of gravity is always beautiful in the living being when it is manifested in a graceful manner. The flight of a bird is beautiful for this same reason—it overcomes gravity with ease and natural grace. Acrobatics cannot produce the same effect. *Elévation* may be achieved by an acrobat, but not *ballon*, which is the ability to maintain a beautiful pose in the air; and Struchkova has this quality in abundance. If Pushkin were alive he would probably say of her what he said of Istomina:

> And suddenly a leap: behold, she flies
> Like down puffed by Æolian lips.

In Moshkovsky's *Waltz*, Struchkova and Lapauri also draw lovely choreographic patterns in the air. Some critic said it was acrobatics, and called this dance "a workers' waltz". I do not know what he meant, a compliment or contempt, but it is obvious to any unprejudiced person that there is something vital about this dance. Its *élan* dispels frustration. It may be called a youth waltz. It radiates happiness and love of life. It is beautiful wherever it belongs.

* See ANGLO-SOVIET JOURNAL, Vol. XV, No. 1 (Spring 1954), *The Renaissance of the Dance.*

True, Lapauri tosses Struchkova's spinning figure aloft ; but if a vertical *tour en l'air* is allowed in classical ballet, why should a horizontal one be termed " circus " ? When in this waltz Struchkova flies horizontally into her partner's arms she performs a movement which in the Imperial Russian Ballet was called *ribka* (little fish). The only difference is that in Soviet ballet it has been greatly extended in length and is performed with far more confidence. Acrobatic methods have always been used in classical ballet, especially in the Italian school. Take, for example, another old movement in which a ballerina, after a *pirouette,* is caught by her partner under his armpit and held with her legs crossed in the air and her face down, like a diving fish. It is only because Soviet technique has made such phenomenal progress that it is accused of acrobatics. The difference between acrobatics in the circus and in ballet is that in the former it is used as an end in itself, but in the latter only as a means of creating an artistic choreographic design, a beautiful pose or movement, and strictly within a classical tradition, as is shown so conclusively in the splendid finish of the Moshkovsky *Waltz.* Some western choreographers use undisguised acrobatics of the circus type, as with Roland Petit in *Les Forains.* Diaghilev actually employed real acrobats in one of his ballets (*Renard*). The acrobats were dressed in costumes identical with those of the dancers, so that one could not distinguish between them. As for younger choreographers, they try to imitate Massine and Balanchine in their attempts to elevate choreographic compositions into the third dimension, and the result is sheer acrobatics and posturing. Balanchine's static Greek chariot in *La Chatte,* built by boys standing on each other's bodies and shoulders, was also acrobatic, but it had at any rate the effect of beautiful statuary, and most of Massine's groupings were magnificent.

In some decadent ballets of today acrobatics is combined with shocking eroticism. The opinion that the dances performed by Struchkova and Lapauri belong to the circus or music hall betrays insufficient understanding of classical technique. If these dances were easy to copy they would be shown by every ballet company in Europe and America ; but no dancer of any western school could copy them, let alone circus acrobats or music hall dancers, for the acrobatic methods used in them are a product of modern classical technique, which takes years of highly specialised training. Besides horizontal *tours en l'air* and flights, there are in these dances some entirely new steps built on a traditional basis.

According to one critic, the choreography of the *adagio* from *Casse-Noisette* as danced by Struchkova and Lapauri was seasoned with " lifts ", just as that of *The Sleeping Beauty* had been the year before. Lifts are omitted from these ballets only if the male dancers are not virile enough to lift a ballerina as if she were an imponderable being, or if the ballerina is not light enough to produce this illusion. There has always been a traditional tendency in Russian ballet to show a male dancer in all his virile strength and beauty, and for a ballerina to soar in the air either supported by her partner or solo. It is of such a dance in the air, imbued with the poetry of motion, that Pushkin said :

> Shall I again behold the flight
> Of our Russian Terpsichore, of soul so full?

Together with technical virtuosity, Struchkova possesses artistic refinements essential in a great ballerina—rare musicality, expressive *port de bras,* and a flowing *enchainement.* Her movements mutate one into another to give a single melodic line. In her *pirouettes, la préparation* is invisible, and her unsupported *tours* also seem spontaneous, without any preparation at all. They are dazzling in speed, in quality and in number. As a type of ballerina she reminds me of Geltzer, whom Madame Karsavina calls " that virtuoso of the dance ". But Struchkova's virtuosity produces an even more stupendous effect, because she has the advantage of being equipped with more advanced technique. The carriage of her head, the delicacy and perfection of her balance, and the smooth

knee, all bear the finest stamp of the Russian school. Her technique is concealed by a consummate artistry. Every detail is accomplished with finesse and musical precision. Not only are her *jetés, sauts, attitudes, arabesques* and other dance steps and poses technically irreproachable, but they are artistically perfect as a means of expression of various emotional moods. If Struchkova as a dancer dazzles by her prodigious technique, she delights by her gift of artistic transformation through different rôles—from a lyrical Swan into a passionate Bacchante, from a modern young girl in Moshkovsky's *Waltz* into an eighteenth-century Marquise in Lully's *Gavotte*, a fragile Sèvres statuette come to life. Her costume in the *Gavotte* is of impeccable design and most exquisite colour ; it deserved the torrent of applause the moment the curtain went up. Vainonen's choreography in this *Gavotte* is the acme of refinement, and Struchkova's rendering of the style of the epoch in dance form is incomparable. A more beautiful Marquise could not have stepped out from the animated tapestries of *Le Pavillon d'Armide*. It is significant that critics who found fault with her other dances were dumbfounded by this one and uttered not a word of either praise or blame. Curiously enough, the spirit of the eighteenth century is captured by this classical dance, although the *pointes* were not invented till much later. Eliminate them from Struchkova's *Gavotte*, and the Sèvres statuette would be shattered.

Convention is the property of art. It gave Fokine freedom to put the oriental Queen of Shamakhan on *pointes*, it permits the use of classical steps in a stylised Spanish dance, as seen in Antonio's repertoire, and it allows the dancer to use the *pointes* in the bacchanale of *Walpurgisnacht*, although they were not used by the Greeks and Romans. *Walpurgisnacht* has been criticised in empty and generalised terms of disappointment, without a hint of what was supposed to be wrong with it, except perhaps Gounod's music. Chaliapin sang in *Faust*, and the greatest of ballerinas have danced and still dance to Minkus's music, which is of barrel-organ type compared with Gounod's. It is music that calls forth the dance.

Some people affirm that Diaghilev rescued the Russian ballet from this style of dancing, but their argument leads logically to the conclusion that he also rescued it from *The Sleeping Beauty, Swan Lake* and other immortal masterpieces ; and for the sake of what ? *Les Biches, Le Train Bleu*—compositions which are decomposing ? In *Le Train Bleu* some dancers did handstands.

Another critic stated that the style of Soviet dancers was impure, that they had forgotten the classical nobility of Petipa without profiting from Fokine's romantic revolution. He suggested, therefore, that Soviet choreographers should be invited here for lessons in refined taste and for advancement in choreographic composition—a somewhat presumptuous suggestion !

It is not impurity of style, but an extension of the range of classical movements, that is seen in modern Russian dancing. This may be called neo-classicism, a term which may also be applied to the search for new classical forms by Massine, Balanchine and Nijinska. The classical nobility of Petipa is beyond doubt, but it is not of such a refined degree as that of Ivanov, the creator of act two of *Swan Lake*, with its most beautiful of *adagios*. The love duet that Struchkova and Lapauri dance is merely revised by Gorsky, and can hardly be termed a music hall adagio.* As danced customarily outside Russia, it is also a revised version with *développées en l'air* and two partners to support Odette instead of one, apparently for greater safety.

Alexander Lapauri's sustained superb supporting is taken for granted. I am

* R. Zakharov in his *Iskusstvo Balletmeistera* (The Art of the Ballet-Master, 1954) says: " At the Bolshoi Theatre all the *corps de ballet* dances of the swans are composed by Gorsky on Ivanov's principle. The choreography of the duet of Odette and Siegfried in all productions known to me is by Ivanov." It must therefore be concluded that the statement in the programme, " choreography by Gorsky ", was inaccurate.

reluctant to add that nobody here has seen the nobility of Petipa except in the ill-fated 1921 season of *The Sleeping Beauty*. Fokine's romantic revolution has been carried to new heights by Lavrovsky in Prokofiev's *Romeo and Juliet* and by Zakharov in Asafiev's *The Fountain of Bakhchisarai* (based on a poem by Pushkin). Furthermore, the dance has become suffused with realism in depicting emotions and ideas according to Stanislavsky's system. Soviet choreographers have many failures as well as achievements, but their ideals are different from western conceptions of ballet compositions. I have to refer critics and readers to Zakharov's erudite article on *The Urgent Needs of Soviet Ballet* (SCR Theatre Section Bulletin, Vol. 2, No. 1, January 1955) for information on this subject.

The same critic goes on to propose that Soviet designers should be invited to New York, Paris, London and the Diaghilev Exhibition for lessons in good taste. It is rare indeed for European students to study art in America. As for London and Paris, they have as many decorative failures as Moscow and Leningrad, and they make none too flattering comments on each other's taste. Thus *Le Figaro* of September 29, 1954, writes : *" L'aveuglante laideur des décors et des costumes amenés par la compagnie de Sadler's Wells pour danser La Belle au Bois Dormant de Tchaikowsky écrase un spectacle " ;* and *Le Monde* of the same date says : *" Quelle indigence de goût, Seigneur ! Et comme les décors sont anémiques ! "**

There is no need to quote English criticisms of French productions ; they appear every time a French company comes to London. I will not touch upon the Diaghilev Exhibition. Enough has been said about its treasures and the far from irreproachable manner of their presentation.

I was one of the first to draw attention to the Soviet dancers' poor costumes ; but why should their designers be invited abroad for æsthetic enlightenment if they can create such beautiful dresses as Struchkova's in the *Gavotte*, and when there are in Russia such superb designers as Boris Tuzlukov, whose décor and costumes for *The Devil's Mill*, produced by the Moscow State Puppet Theatre in London last summer, bewitched British public and press ?

Character dances are unfortunately beyond the scope of this article, and I can say only a few words about them. A compliment must be paid to the superb and subtle art of Gulnara Mavayeva, whose youthful Uzbek charm is enchanting. Mansur Kamaletdinov deserves praise for his magnificent *Lezginka*, one of the most beautiful of all folk dances. It has inwardly concealed fire, it has dignity of bearing, and it reflects the grandeur of the Caucasus. The Hungarian dance of Galetskaya and Kamaletdinov was genuinely national and well executed, but their *Mazurka* lacked brilliance. Galetskaya's Spanish dance had nothing Spanish in it ; it is a *pas d'Espagne* of the type used in the Imperial theatres, and is unworthy of the Bolshoi ; and her costume in this dance was lamentable. Let us conclude by emphasising that the ballet-loving public are looking forward not to decorative accessories but to the vision of the apotheosis of the dance. They will not be disappointed.

V.K.

* *Figaro :* The blinding ugliness of the sets and costumes brought by the Sadler's Wells company to dance Chaikovsky's *Sleeping Beauty* flattens the show. *Le Monde :* What poverty-stricken taste, good Lord! And how anæmic the sets are!

A S J Moscow Letter

MOTOR TOURING IN THE CAUCASUS

Ralph Parker

ONE February evening there was flashed on to the TV screen, between a new Polish film and a conducted tour of the Red October chocolate works, an announcement that a new chain of hotels had been opened in the Caucasus. And then we were given views of the scenery along the Novorossisk-Batumi coastal highway, the sombre, densely wooded country that reaches as far as smiling Sochi, beyond where the mountain slopes become a backcloth against which holiday-makers move at that ultra-relaxed pace peculiar to the régime of the rest home and the sanatorium, and finally the southern stretch of the road where the motorist has to take his place in lines of lorries loaded with tobacco or tea, or carts bringing grapes, peaches or tangerines to market.

There followed a few words about the terms and a reference to the services available to private motorists, for whom these new hotels are intended. They are known as *pensionati*, but the word, like most foreign words imported into Russia, is misleading: you pay separately for your room or bungalow and for your restaurant meals. Motels would be an apter description.

These new Caucasian hotels were opened experimentally last summer, and I suppose I am the first foreigner to have paid them a visit. I read of them on a notice board when taking my car by the Yalta-Sochi ferry across the Black Sea, jotted the names down and made a mental note to look out for them while driving. As it turned out, they came in very useful.

To obtain some idea of the novelty of this new development, the country hotel for private motorists, account must be taken of the general hotel situation in the Soviet Union. There are many hotels, but few of them are open to all comers. For the convenience of their representatives, most large organisations have rooms permanently reserved in city hotels; in some cases they maintain entire hotels or hostels. Thus collective farmers sent up to Moscow for the Agricultural Exhibition are lodged in the many hostels built for the purpose. During the winter, when the exhibition is closed, various organisations take over the accommodation and use it for people coming up to the capital on business. By and large, any traveller on business is certain of accommodation. In smaller places the hotels are generally owned by the municipal authorities. Even in the smallest district centre there are usually a few rooms in a private house reserved for travellers on business. Not long ago I was in a small mining settlement in the Altai, close to the eastern borders of Kazakhstan, and was able to occupy a clean, light room in a new three-storey building with electricity and central heating; and very comfortable we were, too. Our landlady, the wife of a local government official, provided us with food from her own kitchen.

The casual traveller is less well provided for; he must take his turn after those who are able to show that their journeys are necessary. Of course, at holiday resorts the pressure on hotel accommodation by people on officially sponsored business is less, but then there are foreign delegations, not to

mention travelling theatre companies, tennis champions, musicians, and so on. Fortunately, at all holiday resorts the practice of letting rooms is widespread; furthermore, the trade union movement runs tourists' hostels, which take care of many thousands of holiday-makers. Local authorities in the main health resorts have set up bureaux during the past two or three seasons to help "unorganised" travellers to find board and lodging; and a good deal is being done in places like Yalta and Sochi to meet the manifold requirements of visitors who are not having an "all-found" holiday at a rest home or sanatorium. All the same, the accommodation available to this category of people during the summer months is somewhat rough-and-ready.

The new Caucasian hotels are specifically meant for people touring in their own cars. Their appearance on the roads is a post-war phenomenon. It began with the building of the Moscow-Simferopol highway, 800 miles of perfect road surface, and of a network of good roads linking the Caucasian spas. The big road-building programme under the current five-year plan has made it safe and easy to drive from Moscow to the Baltic republics via Byelorussia and to Kiev via Kharkov; before long motorists will be able to use new highways linking Moscow with Stalingrad and the Caspian shores; the Moscow-Leningrad road is being rebuilt and there is talk of a Moscow-Peking main road being built in stages.

These roads are in a different category from ordinary roads: they are state highways, and this places special obligations on those who maintain and use them. Every few score miles there are road masters' lodges where road-maintenance equipment is kept; the highways have their own first-aid stations: and quite a large number of workers are kept in full employment sign painting, ditching, and so on. When caterpillar-tracked vehicles have to cross the road from the fields, metal sheets are laid down to protect the surface, and the militia patrols on their pale blue motor-cycles give short shrift to any lorry drivers who are damaging the tarmac. Sign-posting is thorough and informative: no driver has any excuse for finding himself stranded without petrol or far from a hotel at nightfall or for passing a turning that leads to the home of Leo Tolstoy, the birthplace of Yesenin or the Turgenev museum. Petrol, by the way, is cheap—the equivalent of about 1s. 6d. a gallon.

From the beginning of April until mid-November the motor highways are dominated by private car-owners. Driving their Pobyedas or Moskvichs, they usually travel in parties, the outcome of many an evening's planning in the Moscow Auto Club. They are provided with maps giving the latest information on the state of secondary roads or those parts of the new highways still under construction, and offering many useful facts on amenities in the more remote regions. Many motorists sleep in their cars—the Pobyeda's front seats let down to form a bed—or pitch tents, and the Auto Club's maps give recommended camping sites. The Soviet owner-driver is not expected to have quite as thorough a knowledge of car maintenance as the professional driver, but before he receives the amateur driver's licence he must have taken a course of instruction in the theory of the internal combustion engine and shown himself capable of carrying out those running repairs that most motorists in other lands pay a mechanic to do for them. Furthermore, serious errors in driving, not necessarily involving an accident, may lead through a series of down-grading steps to a loss of licence—after which the motorist has to wait six months before taking the tests again. My own experiences on the roads of the Soviet Union make me think that while there are, as everywhere, bad and reckless drivers, the standard of amateur driving is far higher than elsewhere, while the amateur motorist's technical knowledge is in an altogether different class from that found abroad.

Defects due to careless maintenance, if they do not reveal themselves on

the daily runs of several hundred miles across the steppe with which most tours begin, are likely to be detected by the local inspectors, whose endorsement is required in the car's technical passport before it can be used on the dangerous mountain roads of the Crimea or the Caucasus. After a month's driving on these roads I have no doubt that this system of brake and steering control is a useful safeguard against accident. Though much widening has been done during the past two or three years, the Crimean roads are such that a mechanical failure will probably have fatal results.

So it is with their cars in good condition that the well-trained Moscow motorists set out on the 3,000-4,000-mile tours which so many make during their summer holidays. You will find among them higher-qualified workers and engineers, army officers, business executives, actors, occasionally a party of students using a borrowed family car, though on the whole the tourists show a higher proportion of the middle-aged than one finds engaged in any other leisure activity in the Soviet Union. But wide as is the variety in age and social origin, the touring fraternity is linked by a camaraderie of the road which is itself an indication of the mood in which people set out—with a sense of adventure, of being pioneers, above all of being at leisure.

There are of course degrees of adventurousness. For the staid, the road to Yalta with an overnight stop at the roadside hotel at Mtsensk, lunch next day in Kharkov, followed by a fast afternoon run to Zaporozhye and an easy third day across the south Ukraine—a picnic lunch on a Scythian barrow or beside the salt lakes of the Perekop isthmus—and then through the pass to catch the first glimpse of the Black Sea as the sun sets, and enter Yalta when the noble amphitheatre of mountain slope is glittering with lights and Ai Petri's crest is only a smudge on the sky—a drive so easy that one has ample time to recall what the names of the towns one drives through meant to the world a dozen years ago: Tula, Orel, Kursk, Byelgorod, Kharkov, Zaporozhye. Time, too, to stop beside the simple and dignified war memorial on the chalk hills above Byelgorod and study the battlefield from this point where the tanks launched their attack in the operation which, as Marshal Zhukov has recently pointed out, left the Soviet Army commanders in no further doubt about the outcome of the war. And time to absorb a scene which seems to wear a gloss of novelty. Is it because almost every house, cottage, bridge, embankment, every foot of road in sight, has been built or repaired since war swept over this land? Or because of the amplitude of the ever-changing sky over the steppe? Or because the absence of hedges and woods means that the whole of the land that stretches around changes its vegetation, renews its cover, every year? Curiously, one easily gets the impression of being at sea as one drives at a steady seventy across the steppes of the Ukraine; the long, dark shapes of the ricks lie on the gently heaving slopes like ships in convoy, and even the slender, tapering spires of the churches have a mastlike look.

Those who leave the Simferopol Highway at Kharkov and take the branch running through the Donets Basin to Rostov have less time for reflection: there are more built-up areas, more lorries and a less perfect road surface; but they are rewarded by the drive across the Kuban steppe and by the pleasure of choosing between a road that winds through the mountainous, sparsely populated land of the Circassians (the Adigei) and another that runs on to Ordzhonikidze in North Ossetia and thence over the 7,800-foot-high Krestov Pass into Georgia.

After long days of driving, the two or three hundred miles of coast road seem child's play. The new motorists' hotels are excellent centres for short runs and are well placed for those who prefer to put their cars away for a time and take a walking or sailing holiday. At Lake Ritsa, some 1,700 feet up the slopes of the Caucasus, there is excellent trout fishing and mountain climbing;

Pitsunda lies under the walls of a Byzantine monastery close to the shores where, according to legend, the Argonauts landed ; near Gagra an old farm-house has been converted, with paths through vineyards down to lonely beaches ; the Sinope pensionat near Sukhumi is one of a group of villas extravagantly built by Greek and Persian merchants at this Caucasian Cannes.

There are two salient features of a motoring holiday in these parts : its democratic nature and the feeling one has of running between the very ancient and the brand new. Except for a few Moskviches, practically all the cars are Pobyedas ; human relations are not complicated by those subtle distinctions that divide car owners in countries where there is a car to match every middle-class income. This is not to say that private car owners here do not take immense pride in their machines and make every effort to give them touches of distinction ; gadgets, white-walled tyres, special upholstery, the extra headlamp. There are differences in age, in upkeep and in performance, but after all the Pobyeda remains a Pobyeda and provides the social observer with more information about its owner's character than his income.

On that fertile coast between Sochi and Batumi old and new jostle each other. Mankind was quick to realize what a gift the Black Sea had given it when the level dropped a few dozen feet and caused the coastal marshes to drain off. From neolithic settlements in the mountain valleys the aboriginal Caucasians descended to the new coastal belt. Pioneers of the Iron Age—to this day Caucasian blacksmiths strike a blow each Thursday " to loosen the fetters of Amirani (Prometheus), whom the bronze-workers punished for discovering the secret of forging iron "—the ancestors of the Georgians made of Colchis a land famed throughout the ancient world for its wool, its grain, its fruit and its honey. Yet war, earthquake, flood and misrule combined to leave few monuments, and today a land whose place-names are laden with associations of the past presents an appearance of newness. This is the result of the extraordinary amount of rural building, itself a consequence of the shift of mountain-dwellers to the coast in the post-war years, and of the carrying out of the plans for developing the health resorts. The ninth-century church at Gagra now lies within the walls of a trade union rest-home ; new hot-houses stretch to the edge of the celebrated Pitsunda pine grove ; and the traveller who has armed himself with a Herodotus as well as the latest Soviet guide-books to the region will not be surprised to find the name Colchidea in the list of leading collective farms.

Long-distance motoring is, of course, only one of the developments resulting from the considerable output of private cars in the Soviet Union. The car has, as elsewhere, led to an extension of the residential areas of the cities ; in the Moscow area, for instance, to the development of an attractive country area some forty miles west of the city, in Leningrad to that of the Karelian isthmus. At present the private motorist enjoys the advantage of highways capable of carrying a far larger volume of traffic than they yet take ; one can drive from the centre of Moscow into the country with no more delay on the road than a minute or two at the street crossings. Another advantage of wide streets and a comparatively small volume of traffic is that parking is virtually unrestricted.

To convey an idea of the attitude of the authorities to cars let me end these notes with a story of what happened to me one winter's day when I parked a very dirty car in a side street near the new State Department Store on Red Square. When I returned to it I found a militia man standing beside it. I glanced ruefully at the " No parking " sign. The militia man saluted and said : " Why do you look so awful ? " " Awful ? " I echoed innocently. " I feel splendid, thank you." " Not you," he replied testily. " I mean your car. It's filthy. Give it a good clean. It's New Year's Day tomorrow."

He is no higher than a cooking-pot — his beard is six feet long!

A Turkmenian Folk Tale

AN old man had three sons. The eldest and middle sons grew tall and strong, but the youngest was born a tiny scrap. In height he was only three feet, but his beard was twice that length. For this reason he was nicknamed " Cooking-pot with the Six-foot Beard."

One day the father said to his sons : " My beloved sons, there is a monstrous giant who lives over the mountain who owes me two groats. With that money it would be possible to buy nails to shoe our donkey. Which of you has the courage to go to the monster and ask him for this debt ?"

" I will go ", answered the eldest son. So the old father agreed to let him go. The eldest son went to the giant and said : " Hey there, honoured giant, why have you not given my father back the two groats you owe him ?"

" Your old father will have to wait a little ", answered the giant. " I planted those two groats of his in the kitchen garden, but so far nothing has come up from them ".

" You worthless cheat ", cried the eldest son. " Pay back the two groats at once. My father wants to buy nails to shoe our donkey ! "

The giant lost his temper on hearing these insulting words, seized the eldest son by his beard, threw him into a well and covered the well over with a large millstone. The middle son got to know of this and said to his father : " Father, let me go to the giant. I will free my brother and will make the monster pay back your two groats ".

The old man gave his middle son permission, and as he was departing said to him : " My beloved son, return as quickly as you can : the donkey needs to be shod and we have no nails ! "

The second son came to the giant's house and said : " Hey there, accursed monster, where is my elder brother ? Answer ! And give me the two groats you owe my father at once ! "

" Your elder brother is sitting down the well ", answered the giant. " He sits there counting the two groats, but he cannot manage to count them anyhow. You go and help him ! "

At these words the giant grasped the second brother by the beard and cast him into the same well beside his elder brother. Word of this came to the youngest son. He went to his father and said : " Father, permit me to go to the monster. I want to liberate my two brothers, take the two groats from the giant, and shake the life out of him ".

" What ? You, my little son ?" said the startled father. " Your two powerful brothers could not manage the giant, how then can you, Cooking-pot with the Six-foot Beard, hope to overcome him ?"

But the youngest son would not listen to his father, whistled to his dog, which was only half as big as he was, and set off to the giant's home. On the way they met a jackal. Cooking-pot with the Six-foot Beard ordered his dog, which he called Half-pot-size, to swallow it up.

The dog ate up the jackal, and they set off again. Then they met a wolf. Cooking-pot with the Six-foot Beard called to his dog : " Hey there, Half-pot-size, catch that wolf ! " The dog swallowed the wolf in a flash.

Then they came to a swiftly flowing stream. Cooking-pot with the Six-foot Beard could neither cross it nor swim it. Then he called to his dog : " Hey there, Half-pot-size, drink up this stream ! " The dog set himself to lap up the water and had soon lapped up the whole stream. So Cooking-pot with the Six-foot Beard crossed the stream over the dry bed.

At last they came to the giant's dwelling. Cooking-pot with the Six-foot Beard tapped on the gate and cried : " Hey there, you disgusting giant, open the gate before I pulverise it ! "

The giant looked through a peep-hole and saw a little man no higher than a cooking-pot and with a beard six feet long. So he threw wide his door and roared : " Who is this who has come to frighten me ? I thought for a minute that it was a fledgeling sparrow cheeping ! What do you want ? "

" Give up my brothers, that's what ! " cried Cooking-pot with the Six-foot Beard. " And bring me two groats immediately ! And look sharp about it ! "

" That's a fine beard you have there, and you have grown it so that I can catch hold of it between my two fingers, like this ", the giant replied. " And in my hen-house there are a cock and a hen who have not tasted human flesh for a long time ".

So saying, the giant caught hold of the youngest son by the beard with his two fingers and cast him into the hen-house. But the dog Half-pot-size rushed after his master and crawled through a slit into the hen-house. The cock caught sight of the tiny man, flapped his wings, and called out to the hen in order to treat her to this tasty morsel.

Cooking-pot with the Six-foot Beard called to his dog : " Hey, Half-pot-size, bring up the jackal you swallowed back there ! " The dog cast up the jackal, and when the jackal had strangled the cock and the hen he swallowed it up again.

Next morning the giant looked into the hen-house and saw the little man sweetly sleeping, whole and unharmed. He called to his cock and his hen, but they had disappeared.

" Hey there, you long-bearded lizard ", cried the giant, " where have my cock and hen got to ?" Cooking-pot with the Six-foot Beard woke up, rubbed his eyes, and answered : " How should I know ? They must have been afraid of me, and run away out of the hen-house ".

" Aha ! " exclaimed the giant furiously. " Well, you won't be able to frighten my old ram ! He could eat you up in a twinkling along with his straw ! " And the giant grabbed hold of the boaster by his six-foot beard, cast him into the sheepfold, and fastened the door.

But the dog Half-pot-size ran after his master and crawled into the sheepfold. Cooking-pot with the Six-foot Beard came to in the sheep's feeding-trough, and saw confronting him the ugly faces of a ram and a sheep. The ram had already opened his jaws, but the young boaster called to his dog : " Hey, Half-pot-size, bring up the wolf you swallowed, quick as you can ! "

The dog cast up the wolf, and the wolf ate up the ram and the sheep. Then Cooking-pot with the Six-foot Beard ordered his dog to swallow the wolf again, and in the twinkling of an eye Half-pot-size did so.

In the morning the giant looked into the sheepfold. And what do you think ? The young boaster was buried in the straw, fast asleep.

" Hey, you villain ", cried the giant. " What have you done with my ram and my sheep ?"

" How should I know ?" answered Cooking-pot with the Six-foot Beard. " They must have been terrified of me and run away ".

" Aha ! " shouted the giant more furiously than ever. " Then I will eat you up myself ! " And he stretched out his paw to grab him by the beard. But Cooking-pot with the Six-foot Beard jumped down out of the sheep's feeding-trough and hid himself in a bag of straw.

" Hey, giant ! " he called out from his hiding-place, " I know where your ram and sheep are hiding ! "

" Where ? Tell me at once ! "

" They have jumped into that well where you live ", answered Cooking-pot with the Six-foot Beard. " Let us go there and you can prove it for yourself ! "

The giant climbed into the well and Cooking-pot with the Six-foot Beard called to his dog, ran to the well and ordered : " Now, Half-pot-size, bring up that stream you swallowed back there, flood the well to the top ! "

The dog filled up the well, the giant was drowned, and the well is there to this day. Then Cooking-pot with the Six-foot Beard ran to the other well where his brothers were languishing. He removed the millstone that covered the well, and brought his brothers up to freedom.

" We are delivered from the giant ", said Cooking-pot with the Six-foot Beard to his brothers. " Now we must discover where he has hidden the two groats which he owes our father ".

" I know where the giant has hidden the two groats ", said the eldest brother. " He has dug them into his kitchen garden ".

The brothers took spades and began to turn over the kitchen garden. And they found seven huge pitchers full of gold, and seven other huge pitchers full of silver.

" How ever shall we carry all these pitchers home ?" asked the middle brother. " We cannot lift such heavy weights ! "

Then Cooking-pot with the Six-foot Beard ordered his dog : " Hey, Half-pot-size, swallow up all these pitchers full of gold and silver ! " In a flash the dog had swallowed them, and then ran sportively in front of the three brothers.

The old father was overjoyed when he saw his sons. But Cooking-pot with the Six-foot Beard called to his dog and ordered it to bring up all the pitchers.

Seeing the gold and silver, the old man asked : " Where did you get these treasures ?"

The eldest son answered : " This gold and silver grew out of your two groats which the giant planted in his garden ". But Cooking-pot with the Six-foot Beard went on and explained further : " Now, father, you will be able to buy nails so that you can shoe our lone donkey ".

Translated by John McLeish.

NOTE

Turkmenistan is one of the Soviet Republics, bordered by Persia and Afghanistan. Before the Revolution it was a land of nomadic tribes of herdsmen and horsemen. This story is translated from a book of folk-tales published for Soviet children in 1953. It is typical of this collection of Turkmenian folklore.

See *The Culture of Soviet Turkmenistan,* ANGLO-SOVIET JOURNAL, Vol. XV, No. 4 (Winter 1954-55).

Book Reviews

RUSSIAN ARCHITECTURE: AN ADMIRABLE HISTORY

Review by
B. LUBETKIN

Art and Architecture of Russia. G. H. Hamilton. (*Pelican History of Art, Penguin Books, 42/-.*)

THE latest addition to the Pelican Histories of Art, by G. H. Hamilton, dealing with both art and architecture in Russia, is admirably presented and illustrated. In what follows I have felt justified in commenting only on the question of architecture, since this is my own subject, and since architecture has always been the most neglected aspect of Russian culture in England.

The appearance of a history of Russian architecture at this juncture is an extremely welcome event. It is not only that this history helps to relieve the appalling shortage of literature on the subject in English, or that it shows in a comprehensive form many masterpieces which, until now, were known only to a specialist public. It can serve also, in the present situation, to break down some persistent and ignorant prejudices which would deny a common heritage shared between eastern and western culture.

Whether this book fulfils these purposes as well as it might have done is another matter. Mr. Hamilton, in his introduction, warns us that his purpose is to analyse formal changes only; thus, by his own admission, limiting both the scope and the import of his book, since no work of art can be adequately understood from the point of view of formal values alone, nor in isolation from the history of the society by and for which it has been created.

To be sure, Mr. Hamilton cannot fail to refer to the historical background, but history appears here as a cavalcade of purely subjective influences, whims, preferences and aversions on the part of individual autocrats, following nothing but the dictates of fashion or temperament.

The inability to relate art to its deep social and economic roots is bound to lead to many superficial conclusions, and to leave many fundamental questions unanswered. For instance, while pointing out that in twelfth-century Russia there was a trend towards simplification and diminution of scale, which is in contrast to the growing elaboration of the architecture of the west at the time, Mr. Hamilton fails to explain that this was not due to any formal will or change of taste, but was only the artistic expression of the break-up of the centralised Kiev empire, on the threshold of feudal relations, a historical process which had no parallel in contemporary western Europe.

Again, unless one acknowledges the rise, in the second half of the eighteenth century, of a radical trend in the politics of the serf-owning nobility, it is difficult to understand why classicism, the style of French revolutionary radicalism, found its fullest development in autocratic Russia. This trend, born of the realisation that serfdom constituted the main obstacle to the country's development, and furthered by the peasant revolts (Pugachov's, for example), is at the very root of the acceptance of classicism, and of its vigour and vitality, in Russia.

The influence exercised in Russia by the progressive "naturalism" of Rousseau is admirably illustrated by the history of the demolition of Quarenghi's Stock Exchange, axially orientated in the Baroque manner towards the Winter Palace across the

Neva, and its subsequent replacement by Thomas de Thomon's new building, this time facing the onrush of the river and taking not the Palace but the broad expanse of water as its compositional theme.

One of the most regrettable consequences of Mr. Hamilton's inability to interpret history in a scientific way as the result of social and economic changes is his complete failure to deal with town planning. Indeed, the art of building towns, which is so inextricably mixed with the history of Russian architecture, is precisely a product of those social and economic motivations which Mr. Hamilton has chosen to ignore. When surveying Russian architecture it is often impossible to understand the evolution of the form without reference to broader town planning considerations.

The early defensive settlements, the many-towered monasteries, the innumerable kremlins, with their emphasis on the contrast of horizontal and vertical, and on the silhouette, have left an imprint on Russian architecture which is still a factor today. Many important individual buildings, considered by themselves, can hardly be explained unless their relation to the ensemble (which may often have been lost or covered up) can be discerned. Such, for example, are the twelfth-century Novgorod churches, and much of the fifteenth-century architecture of Moscow, with its emphasis on the monumental composition of the town-centre, in contrast to contemporary western preoccupation with the individual building. But most of all, of course, this applies to the architecture of the eighteenth century, which saw an unprecedented development of provincial as well as metropolitan town-planning in Russia.

It is enough to realise that in the first half of the eighteenth century more than 400 designs for provincial towns were prepared, with the participation of Kazakov, Starov, Kvassov and so on, to see to what extent this movement somewhat antedates similar attempts in the west.

It would be no exaggeration to see the specific quality of Russian architecture in the supremacy of planning considerations, in the predominance of the ensemble over the treatment of individual buildings. With relatively few exceptions, the purely architectural form is only a product of the layout, of the often intricate relationships to other buildings and spaces, with which it exists either in harmony or in contrast.

It is small wonder that foreign architects in Russia were only too eager to absorb a tradition which alone could offer them such creative opportunities; and that, having acquired the art of ensembles, the architecture they produced in Russia bore little relation to that of their own countries, since in Russia they were dealing with something not merely bigger in scale but qualitatively different. The Russian work of foreign architects should therefore be judged on its own standards: to call Rastrelli's Tsarskoe Selo an unsuccessful Italian Baroque building is to be blind to its success as a Russian Baroque ensemble.

Many art historians have regarded foreign architects in Russia simply as strangers who happened to work in Russia, but whose buildings belong to the tradition of their native countries. Mr. Hamilton does not make this mistake, recognising that, while foreign architects did influence Russian work, they were in turn influenced by Russian work themselves. He does not, however, sufficiently emphasise this reciprocal influence. It would in fact be more correct to lay the emphasis on the effect of Russia on foreign architects, and not the reverse.

The compact plans, articulated by internal piers, seen in the early Kiev churches are basically different from the complex Byzantine plans of the tenth and eleventh centuries; just as the pyramidal compositions, stemming from the old indigenous timber architecture, differ from the Greek prototypes. What is more, the brick coursing of the walls encountered in the tenth-century churches of Kiev and Chernigov appears at Byzantium only towards the end of the eleventh century, as an obvious import from Kiev.

Describing the Uspensky Cathedral in the Kremlin, Mr. Hamilton sees in its rationalistic conception a manifestation of the spirit of the Italian Renaissance, imported, so to speak, with the author. But in a building so obviously inspired by thoroughly Russian traditions, and derived from Russian precedents, it would be far more natural to see the rationalism, not of Italy, but of the great civic, centralising effort made by Russia at this time to throw off the Tartar invaders, religion receding into the background in favour of a purely secular mobilisation.

Could one not see in Rastrelli's elongated palaces at Tsarskoe Selo and at Leningrad a development of the purely Russian tradition of medieval palaces with interminable enfilades and gabled entrances (such as we see in the Terema of the Kremlin by Konstantinov, Agurtzov, Sharutin and Ushakov) instead of merely a whim of the Empress?

Finally, although Mr. Hamilton finds no room to quote the authenticated refusal of Quarenghi to return to Bergamo, which his native city ordered him to do under threats of the death sentence, the gossip on the subject of Firovanti's frustrated desire to return home is not left out.

When Brinkmann wrote his history of the Italian art of the seventeenth and eighteenth centuries, he simply included Rastrelli as an Italian architect. Not only does Mr. Hamilton avoid such gross mistakes, but he displays qualities of observation and sensitiveness in rightly underlining the specifically Russian character of

the works he deals with, although with his subjective approach he is never able to define this character by connecting it with the whole historically determined evolution of Russian culture.

Although some very important buildings are left out, while a great deal of space is devoted to others of less importance, as a background to the subject this book is very useful indeed, not only for the broad public, but also for specialists who intend to go on to a deeper and more detailed study. The shortage of serious works on the subject in English will ensure that this book must for some time retain a great deal of importance. In view of this, it is regretfully necessary to draw attention to the fact that there are a number of factual errors in the text, some of which are set out below.

For instance, Master Peter was not " the first truly native Russian architect ", but was preceded by Mironeg in the first half of the eleventh century and by Nikolai Zhdan of Vishegrod in the second half.

The corbelled, superimposed arches called *kokoshniki,* which became such a characteristic feature of Russian church architecture, were not introduced in the fifteenth century, but in the twelfth, by Master Ivan, in the Evrosinyevsk monastery at Polotsk, and were also used at the end of the same century in the Pyatnitskaya church at Chernigov by Milaneg.

The Egyptian gates by Menelaws are at Tzarskoe Selo, not at Peterhof. And the present writer recently had the pleasure of visiting St. Andrew's church at Kiev, which is in perfect order, and not, as the author states, destroyed.

A PHYSIOLOGICAL STUDY OF MENTAL ILLNESS

Essays on the Patho-Physiology of Higher Nervous Activity. A. G. Ivanov-Smolensky. Moscow 1954, pp.349, 7/6. (Collet's Russian Bookshop, 45 Museum Street, or usual distributors.)

MENTAL disease has been studied by anatomists and surgeons, by psychoanalysts and by psychologists. Treatment based on these studies has been far from successful. Physiological study of the subject has remained very limited in this country. The extensive work done by Pavlov and his colleagues receives a bare mention in the text-books, but has influenced treatment very little. A practical difficulty has been the shortage of material in English dealing with the Pavlovian approach to psychiatry; readers will therefore welcome this translation of Ivanov-Smolensky's book, which brings the position up to date.

The author has chosen " patho-physiology " for his subject, and he does not aim to set out the whole of Pavlov's teaching. None the less, he does deal sufficiently with the basic findings of Pavlov's school of physiology to make his exposition intelligible even to those who have a limited acquaintance with the subject. He breaks the matter up under three heads. These three divisions correspond roughly to the chronological development of the work of Pavlov and his colleagues. At first they used the relatively crude method of removal of part of the brain, studying the function of the remaining areas. This is a method which has a limited application to human head injuries, tumours and other anatomically based disturbances of function.

The second section of the book is concerned with experimental neuroses produced in animals, principally dogs. It was possible in the laboratory to create mental breakdowns, which were in many respects similar to those with which we are familiar in humans, under the influence of appropriate functional strains. An example is the well-known one of a pair of stimuli which are difficult to distinguish, a circle and a nearly round ellipse, the sight of one being followed by food, but not the other. These neuroses were dependent to some extent on the type of nervous system, which in turn depended on heredity and the experience of the animal. However, even the most stable animals could be made neurotic by exposure to sufficient strain.

The experimental disturbances of brain function produced in dogs resembled human neuroses in some cases. In others the disruption of normal physiology was more extreme and the resemblance was more to a human psychosis. In the final stage of such a breakdown, which Pavlov termed the ultraparadoxical phase, the reaction to stimuli is the opposite of what is expected. The hungry dog shuns food. There are obvious similarities to the condition in human melancholia. Catatonic states and prolonged inhibition of higher nervous activity generally proved relatively easy to induce.

The more recent work of the Pavlovian school has a bearing not only on those disturbances of thought processes and behaviour which are recognised as classical neuroses and psychoses, but also on much of what is now classed as " psychosomatic " medicine. It has been left to the Pavlovians to demonstrate that not only is each viscus under the direct control of lower centres in the central nervous system, but that it is also subject to intimate regulation by the cerebral cortex, this relationship having a delicate two-way character. Thus peptic ulcer and a whole range of other " somatic " illnesses are brought within the range of the neuroses. At the same time these disorders, although " functional ", are seen to have a definite material basis in the shape of an alteration of the physiological state of the cerebral cortex.

The last section of Ivanov-Smolensky's review deals with the investigation of

clinical disturbances by Pavlovian techniques. This is not purely an academic exercise to assess the level of conditioned-reflex activity in different conditions, but leads up to actual treatment of a great variety of diseases. Most of the studies relate to psychiatric disorders, ranging from battle stress to alcoholic addiction, with a longer section on schizophrenia. In some cases the therapeutic indications are general, e.g. Pavlov's statement that, at the time of which he was writing, most forms of cortical disfunction were likely to be made worse by the conditions of the ordinary mental hospital, and that something approximating more nearly to sanatorium conditions was required. In other instances specific treatments are mentioned: the use of sleep therapy combined with modified insulin treatment, and the use of hypnosis.

The author explains that Pavlovian science is still in its infancy, but the extensive bibliography gives us some impression of the large amount of careful work already done in this field. The book should be read not only by psychiatrists but also by all those interested in a scientific and physiological explanation of mental processes, normal or abnormal.

B. H. KIRMAN.

See *Soviet Medical Bulletin*, Vol. I, Nos. 2 and 3.

EHRENBERG'S CONTROVERSIAL NOVEL

The Thaw. Ilya Ehrenburg. Translated by Manya Harari. (Harvill Press, 10/6.)

THE THAW is an important novel because it holds some considered reflections of Ehrenburg on life and art, and because it helps us to enter into some of the controversial aspects of the present phase of Soviet literature. In Britain it is easy to get the book and its bearings in the wrong focus. Those interested in the argument should obtain the S.C.R. translation of Simonov's long analysis and Ehrenburg's reply*. Others may be ready to take the book as it stands, a very readable though limited and one-sided picture of a section of Soviet people.

Even its sharpest critics have admitted that it raises many problems truly based in contemporary Soviet life; the dispute centres on the treatment. Ehrenburg certainly gives a grey and drab impression; most of the characters seem lost, groping in a dusk of half-realised emotions and aims; and the thaw that melts their frozen interiors hardly comes through any deepened consciousness or struggle on their part, but simply by the passage of time, as spring comes of winter.

The book therefore has something of a thesis effect, as if Ehrenburg had resolved to show the problems but had not time to bring them into the fuller relations in which they would crop up in life. He has stowed them all in, holus-bolus; and so the effect, though true enough in any given detail, is weak because rather contrived. It is this charge of contrivance rather than of greyness which gets to the root of the matter; and one of the weaknesses of the attacks on the book is that they are rather didactic. Perhaps Ehrenburg would not have reacted against them so sharply if an effort had been made to show how the weaknesses derive from the comparative abstraction of the interesting issues from the general run of life, so that in the end the issues themselves shrink and lose vitality.

Any short review, however, must be unsatisfactory. The book has a certain force that cannot be dismissed by merely pointing out its weaknesses. In its virtues and vices it is a complex book; and in the present phase of Soviet literature it has a definite catalytic value.

JACK LINDSAY.

* SCR Writers' Group Bulletin, Vol. 1, Nos 3, 4 (November 1954), 3/-, post free 3/3.

STALIN ON CO-EXISTENCE 27 YEARS AGO

J. V. Stalin. Works, Vols. IX and X. (Lawrence and Wishart, 5/- vol.)

THOSE in whom the recent boosting of Orwell's *Animal Farm* may have aroused curiosity to know what the so-called Stalin *v.* Trotsky dispute was really all about cannot go to a better place for their answer than to Stalin's writings covering the years 1924-7, and especially the present two volumes of his collected works, which together cover the period from December 1926 to December 1927, when the conflict between the Opposition and the majority in the Bolshevik Party came to a head. This was the time when Trotsky and his followers passed from abstract propaganda to open advocacy of defeatism in the event of war (this was, of course, the "Arcos raid" epoch), with their notorious "Clemenceau thesis" about the propriety of overthrowing the Soviet Government while an enemy army was advancing on the capital.

In his long, patient fight with the Opposition, Stalin reviewed the entire history of the Bolshevik Party and the Russian Labour movement as a whole, so as to show the role played by Trotsky and his associates and the significance of their ideas. A secondary reason for his doing this was to rebut the charges brought against himself concerning various episodes in his career; and these volumes contain Stalin's own version of his alleged "waverings" in April 1917, his attitude to the "Military Opposition" of 1919, his "differences" with Lenin about Georgian affairs, his letter of 1923 on the situation in Germany, and the document known as "Lenin's will" and other matters—

Trotsky's version of which has been copied by one anti-Soviet writer from another over a very long time now, in book after profitable book.

Stalin deals thoroughly with the allegation that the idea of building socialism in one country taken separately, and that country Russia, " not Montenegro or even Bulgaria " (IX, 21), was raised for the first time in 1925, and traces Trotsky's disputes with Lenin on this question, as well as showing why in 1926-7 it had become objectively necessary to undertake socialist industrialisation as an immediate practical task (IX, 37-8).

A theme which recurs continually throughout the dispute with the Opposition is that of the policy of the Bolshevik Party and the Soviet Government towards the peasantry. Stalin, following Lenin, repeatedly stressed the necessity for correct relations with the peasantry as a *sine qua non* of the advance to socialism, and denounced the Opposition's tendency to treat the peasants as a sort of " colony " to be exploited for the benefit of the workers. The dictatorship of the proletariat, he explained, was a special form of class *alliance* between the workers and the peasants, not a special device for squeezing the latter. In view of the reforms affecting the collective farmers which were introduced in mid-1953, it is particularly interesting to read Stalin's observations on this theme. It will be recalled that the series of post-war price reductions had proved a mixed blessing to large sections of the collective farmers, through their effect on the prices which the latter could get on the market for their surplus produce. In order to right this balance, the Soviet Government halved the agricultural tax and cancelled arrears of payment, and also greatly increased the procurement prices paid by the State to the collective farms. Collective farmers interviewed by British visitors in the second half of 1953 were enthusiastic about the benefit these reforms had brought to their budgets. The measures in question were evidently not adopted without a struggle ; from a passage in the statement issued in connection with the arrest of L. P. Beria, which occurred at this time (" Beria did his best to retard the solution of urgent problems of strengthening and developing agriculture, to undermine the collective farms and to create difficulties in the food supply of the population of the USSR "), one may deduce that, in 1953 as in 1926-7, would-be disrupters of Soviet society saw trouble-making between its two basic classes as their principal *modus operandi*.

These volumes contain the bulk of Stalin's writings on China, with their close analysis of Chinese feudalism in relation to the problems of the revolution which saw such extraordinary ups and downs in those years. While the Opposition rushed from fantastic hopes and plans to the blackest pessimism, Stalin forecast the general lines of future development of events in China with amazing accuracy. Drawing upon his study of the similarities and differences between pre-1917 Russian and current Chinese society, he pointed out, among other things, that even such a consolidation of the counter-revolutionary régime as had been effected in Russia after 1905 was beyond the range of Chiang Kai-shek, for there was no group in China capable of undertaking anything like the Stolypin reform, " which might serve the ruling groups as a lightning-conductor " (IX, 365). These speeches and articles on China include a number of observations *en passant* about the political institutions of other countries, mentioned for purposes of comparison with what was happening in China. Notable among these are Stalin's classic remarks about the nature and future of the British Labour Party, and about Kemalism—the latter a useful guide to some aspects of Middle East politics today.

Of some topical interest in connection with the recent campaign in the USSR against excessive drinking of vodka, and measures to restrict its sale, are a number of passages (e.g. X, 238-9) dealing with the reasons for the introduction of the vodka monopoly and the long-term policy concerning this drink and its place in Russian life.

On the most important question of the present day, these volumes recall how, twenty-seven years ago, Stalin was fighting for the same general foreign policy as that now being pursued by the Government headed by Mr. Bulganin. " Our relations with the capitalist countries are based on the assumption that the co-existence of two opposite systems is possible. . . . Our country could be a vast market for imports of equipment, while the capitalist countries need markets for precisely that kind of goods " (X, 296).

BRIAN PEARCE.

REALISM IN BALLET

Iskusstvo balletmeistera (The Art of the Ballet Master). R. Zakharov. (Moscow, 1954.)

SINCE Noverre's *Lettres sur la danse* this is the first book on the methodology of choreographic composition. Zakharov's exposition of his system is equally accessible to specialists and to the public. After tracing the struggle, throughout the history of Russian ballet, of a realistic tendency—initiated by Noverre—as against the empty brilliance of formalism, he postulates a fundamental principle formulated by Belinsky: *In art there is no beautiful form without beautiful content.* In this connection Zakharov expresses some ideas with which many people here would disagree, such as, for example, his opinion that Fokine wasted his enormous talent on the doll's passions

of Petrushka and the troubles of pathetic Pierrot. True, the task of Soviet choreographers goes beyond Fokine's romantic and expressionist revolution, and is a more difficult one—that of composing ballets on profound subjects by great masters of literature (Shakespeare, Pushkin, Balzac and others), and also on themes from contemporary life and history, suffusing the dance with realism according to Stanislavsky's system. Nevertheless, most people find Petrushka a very moving drama, and according to the *Materials on the History of Russian Ballet,* published in 1939, Fokine's *Carnaval* was in the Soviet repertoire, not to mention *Chopiniana* (*Les Sylphides*), in the waltz from which Ulanova, in her recent screen appearance, gave one of the most beautiful and moving ballet impressions of the last half-century.

Zakharov's other important principle is the enrichment of the classical dance by folklore. Contrary to popular belief, all classical movements originated from folk dances, which, like music, express people's feelings and ideas. In this respect the Soviet republics provide an exceptional wealth and variety of material for inspiration. The severance of the ballet from the dance-creativeness of the people leads to decadence. The classical dance is so called because, like classical sculpture, it represents a perfect harmony and unity between the ideal physical form and the inner world of man. According to Noverre a good ballet must be a living picture of people's passions, emotions and so on; it is impossible to achieve this without the inspiration derived from folk dances. The choreographer, however, should not make a photographic copy of a folk dance, but take its characteristic features and develop them, integrating them into his composition, which may be on a higher plane than the original source, just as a composer of music inspired by a folk tune creates a symphonic poem.

Ballet must reflect life's uninterrupted development and truth, and choreographers and dancers must be guided by Stanislavsky's system of portraying feelings and ideas; otherwise classical steps and poses remain lifeless formal exercises. Every classical movement and pose must convey some meaning. There must be a unity of form and content, a unity of musical and visual images. A mere metro-rhythmic illustration of music is an abstraction which may please the eye but cannot appeal to the soul. Perhaps following Leonardo's example, Zakharov even delves into science, and says that the study of Pavlov's work on the two signalling systems would help choreographic art, for our emotional experiences are expressed by means of one of these systems in actions and mimic movements. He gives examples of individual artists whose interpretation of characters in significant ballets has risen to great heights, and he regrets that the school curriculum does not include a special course of instruction in the "dance of action".* In consequence of this omission, the choreographer has to teach young artists how to express the spiritual essence of the dance whose text he has composed. *Danses d'action* reveal the content, whereas *danses de divertissement* characterise the milieu and location where the action unfolds. These *danses d'action* should not be confused with the isolated *pas d'action* of the old so-called *tutu* ballets.

Stanislavsky's system threw light on the dramaturgy, methodology, technology and aesthetic principles on which ballet is based, and necessitated the opening in 1946 of the choreographic faculty at the Institute of Theatrical Art. The curriculum includes, among other subjects, the discovery and cultivation of the individual choreographic "handwriting" of each future choreographer, the methodology and composition of the classical dance and of folk dances and historical dances, the art of terrestrial and aerial support in duets, and finally a diploma composition of a ballet, which must be produced in one of the Republics.

Zakharov divides the creative process of ballet composition into five organically united stages. 1. The origin of an "idea-theme", which includes an outline of the story. 2. A composition plan, or musico-choreographic scenario, which is submitted to the composer of the music. This is preceded by the study of various sources, literary, historical, iconographic and so on. 3. The writing of the music by the composer, in consultation with the choreographer. Not every composer can write ballet music, and Zakharov discusses this special aptitude. 4. The composition of the choreography. At this stage the author acquaints the art council with his work, which is discussed at a special conference. 5. The production of the ballet. The ballet-master composer now becomes a ballet-master producer. This work begins with a discussion of the principal roles with the individual performers. Then rehearsals begin.

Only an artist possessing perfect technique can concentrate his or her whole attention on the creation of the image rather than on overcoming technical difficulties impeding the creative faculty. It follows that there are no great ballet artists who are not great dancers; the reverse, however, is of course possible. An artist incapable of executing the dance in the required tempo, for example, or who is unable to maintain balance in some pose for the time needed, is excluded from the cast. Zakharov devotes special chapters to discussing work with the composer, the conductor, the concert master, the pianist,

* See SCR Theatre Bulletin, Vol. 2, No. 1 (Jan. 1955). 1/6, post free 1/9.

the set and costume designer. With the latter, in addition to questions of general style and atmosphere, there are consultations on such essential details as the colours and fabrics for costumes to suit the moods of the various dances, and on the rules of perspective, for example the placing of children from the ballet school, dressed as adults, against a background of sets in diminutive proportions, and placing the tallest artists near the footlights, and so on.

The various collaborators have to attend each other's rehearsals, so as to achieve a harmonious synthesis of their arts. The conductor must have a thorough knowledge of the choreography of the ballet he is conducting, the members of the orchestra must be familiar with the story and the style, in order to enhance the quality of the musical execution.

In conclusion, Zakharov gives a most interesting description of the production of his ballet *The Bronze Horseman* (from a poem by Pushkin), which contains a far-reaching historico-philosophical idea of individual happiness destroyed by a great social purpose, the founding of St. Petersburg by Peter the Great. The flood scene is highly original in concept.

The book has an appendix of several musico-choreographic scenarios. It has not been translated into English, but it would be of great interest to all ballet lovers here, in spite of or because of the difference in the ballet ideals of the USSR and western Europe.

V.K.

THE ROLE OF SCIENCE

Science in History. J. D. Bernal. (C. A. Watts and Co. Ltd., 42/-.)

SCIENCE in History is a contentious book, and for that alone it is valuable. It is an erudite book ; its virtue, however, is not its erudition but the fact that it is a first approximation at describing the role of science in history. Our thanks are due to Professor Bernal for having attempted it ; he must often have thought he had bitten off more than he could chew. He admits himself that the attempt is uneven, and invites comment, criticism and disagreement. Some parts are less successful than others ; in some places it almost relapses into a history of science. The least satisfactory part of the book is that dealing with the ancient and medieval periods, particularly the feudal ; here the weakness lies in the author's grasp of medieval history and not in his picture of feudal science as such. One feels the magic wand of trade being waved too often to solve problems of feudal development, and is left wondering in what alchemist's cupboard it had been found. As a result, the role and place of inventions like the water-mill and printing are not dealt with in a satisfying fashion. But this is not the place to develop such questions.

About half of Professor Bernal's book is devoted to the role of science in the twentieth century, and a considerable proportion of this relates to the role of science in the Soviet Union. *Science in History* is not, however, a handbook on science in the USSR ; the reader who wants an all-round picture of Soviet science will have to work judiciously with the index, though he will be rewarded for his effort. Such a picture is not the purpose of the book ; but an appreciation of the place of science in Soviet society is the culmination of its argument. And it does succeed in giving such an appreciation.

Science in History is as much a book for the general reader as for the scientist, perhaps more so. It does not require scientific training to read it, and there are no terrifying pages of formulæ of mathematical equations. It is the kind of book that one can dip into and browse in ; its size makes reading straight through from cover to cover a somewhat formidable task.

H.C.C.

PUBLICATIONS RECEIVED

Constructive Use of Science, The. (*Association of Scientific Workers, 6d.*)

Herald of Peace, The. No. 4, Jan.-Mar. 1955. (*International Peace Society, 4d.*)

Marxist Quarterly, The. Vol. 2, Nos. 1 and 2, Jan./Apr. 1955. (*Lawrence & Wishart, 2/6 each.*)

Peaceful Coexistence. Andrew Rothstein. (*Penguin Books, 2/-.*)

Philosophical Essays. N. G. Chernyshevsky. (*Collet's, 8/6.*)

Russian Revolution, 1917. The. N. N. Sukhanov. (*O.U.P., 42/-.*)

Soviet Russia. Jacob Miller. (*Hutchinson, University Library Series, 8/6.*)

Studies in Charter Revision. (*Council for United Nations Charter Review, unpriced.*)

Summer Impressions. Fyodor Dostoievsky. Tr. K. Fitzlyon. (*John Calder, 9/6.*)

War and Peace. L. Tolstoy. Tr. C. Maude. n.e. (*Macmillan/O.U.P., 21/-.*)

Works, Vol. XI. J. V. Stalin. (*Lawrence & Wishart, 5/-.*)

World Calendar. Some Social and Economic Advantages of the. J. A. Joyce. (*World Calendar Association, unpriced.*)

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